BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, SEPTEMBER 7th, 1935

INJURIES TO THE SEMILUNAR CARTILAGES

BY

CHARLES A. PANNETT, B.Sc., M.D., F.R.C.S.

PROFESSOR OF SURGERY, UNIVERSITY OF LONDON; SURGEON TO ST. MARY'S HOSPITAL

No operation can be more satisfactory to both surgeon and patient than that for fracture of the semilunar cartilage of the knee, yet no surgeon of much experience can look back upon all his cases of internal derangement of the knee-joint with complete satisfaction with the results. The difficulties are, in the first place, those of accurate diagnosis, and, secondly, those of the actual technical procedure. It is disconcerting to discover no evidence of injury to a cartilage by the ordinary anterior exposure when the symptoms beforehand have been very suggestive, and it is disturbing to find that the removal of a supposedly offending cartilage has not led to the promised relief. McMurray[1] has recently dealt with these problems in a most informative fashion. He emphasizes the importance of diagnosis before operation, as by no practically expedient method can the condition of the cartilages be ascertained on the operation table. Splitting the patella vertically or displacing it laterally does not seem to be quite justifiable for exploratory purposes, so that clinical diagnosis is essential.

The Diagnosis of Injury to the Cartilage

In my experience as a general surgeon injuries to the external cartilage have been rare compared with injuries to the internal cartilage. In those I have seen the damage has obviously been to the outer side of the joint; there have been the attacks of sudden inability fully to extend the knee-joint, and frequently there has been the characteristic loud clicking. I have never met an example of fracture of the external semilunar cartilage with symptoms referred to the inner side of the joints, such as some surgeons have reported. It is with the inner cartilage that difficulty occurs, because the clinical features do not always conform to the typical textbook description. The usually accepted signs and symptoms mean an injury to the anterior part of the cartilage. When, however, the posterior part of the meniscus has suffered damage they depart from type. Always there is a history of a severe primary injury to the joint, but there is no history of attacks of pain followed by inability to extend. The erroneously labelled "locking" feature is absent. So also is the tender point at the anterior attachment of the cartilage at the side of the ligamentum patellae. The characteristic description by the patient is that, with no apparent relation to any particular movement, the knee will suddenly give way, and he will feel a sharp, crippling pain. Often he will say the pain is inside the joint itself. He can always get his leg straight. As in the typical attacks fluid may be poured out. That is all there is.

Fortunately there is one sign which, when it can be detected, is, so far as I know, infallible. It is the special sign described by McMurray: the presence of a click at a definite stage in extension when the fully flexed and everted leg is slowly straightened on the thigh. I find it easiest to elicit if the examiner holds the limb firmly in the required position and the patient gives active assistance in the slow movement of extension. The firm bracing up of his muscles seems to help to produce the click, which is sometimes perceptible to the observer's ears as well as to his fingers. An *x*-ray examination will nearly always show up a loose body, so that this source of error can be eliminated as a cause of the symptoms.

FIG. 1.—Method of reducing a displaced cartilage.

Reduction of Displaced Cartilage

There does not seem to be any reason to alter the practice of refraining from operating after the primary injury. If it were true that a split in the cartilage never heals, as is categorically stated by McMurray, logically there would be no choice but to have recourse to surgery. But we have no proof of this inability of cartilage to heal. It is true that repair of cartilage is sluggish, and, as in repair of other tissue, a fibrous junction results. What is known definitely is that some patients have an undoubted injury to a cartilage and never experience any further trouble. It is quite conceivable that in a "bucket-handle" tear reduction may bring the raw edges of cartilage into contact in their normal position and that fibrous union should result. Such patients are not operated upon, so evidence is lacking. If, however, the edges remain apart and become rounded off, all hope of union is lost. Further trouble is then certain. It is such considerations which suggest that it is better to wait for a second attack of derangement before recommending operative removal.

The usual method of reduction of a displaced cartilage by flexion, inversion, and rather sudden extension of the knee-joint is not always successful. When it fails the movement is brought to an end with a sudden jerk, which, unless there is anaesthesia, is extremely painful, and which can scarcely help but do further injury to the cartilage. A method I have used for many years is free from this objection (Fig. 1).

[1] McMurray, T. P.: *British Medical Journal*, 1934, i, 709.

The knee-joint is fully flexed while the patient lies on his back. The muscles must be relaxed. Anaesthesia is thus an advantage. The surgeon stands on the affected side facing the head of the patient, and with rapid movements strikes with the palms of his hands alternately the inner condyle of the femur and the external tuberosity of the tibia, so that the fully flexed relaxed knee-joint flops from side to side over a foot or more range. When about ten movements have been made the joint is slowly extended. This movement is quite painless, and reduction is revealed by the possibility of full extension without any pain or resistance. This method is so simple and effective that I have often made students carry out the manipulation on patients who have arrived in the out-patient department with unreduced cartilages.

Management after Reduction

The subsequent management after reduction at the primary attack requires some consideration. It is essential that no strain should be put upon the internal lateral ligament, which has usually received some damage. The treatment most effective for this—namely, immobilization in plaster-of-Paris—is not altogether desirable, because it leads to excessive wasting of the thigh muscles and perhaps to adhesions within the joint (since there is certain to be a haemarthrosis), which will need afterwards to be torn by manipulation under anaesthesia. The excessive wasting of the thigh muscles leads to a passive effusion into the joints when the patient gets about. Sir Robert Jones recommended confinement to bed, with a back splint for a week. What is really required is movement of the joint without strain to the internal lateral ligament, an object rather difficult to realize.

Having tried many plans I think the best is to keep the patient in bed with his knee on a back splint for the few days required to fit him with a Thomas walking calliper splint. The back splint should be removed twice daily for the patient to practise active movements of his knee without weight-bearing. In three or four days, a walking calliper having been made, he is allowed to be up and about. In this way serious wasting of the quadriceps muscle is avoided, and with care the internal lateral ligament is not subjected to strain. The splint should be worn for two weeks; after which the patient is allowed to go free except for a bandage around the joint. The trouble entailed in having a calliper made is not very great, and is offset by the prospect of avoidance of a major surgical operation on the knee.

Operative Treatment

When more than one attack of displacement has occurred an operation becomes necessary. There is sharply divided opinion as to how much of the cartilage should be removed. There are those surgeons who advocate the removal of the whole of the cartilage in every case; there are others who claim that it is necessary to remove only the portion which is partly detached. Both groups would appear to be right under varying circumstances. When the joint is opened by the usual incision in front to the medial side of the patella it is frequently immediately obvious that there is a "bucket-handle" tear, or a pedicled piece of cartilage split off from the thin, free margin of the meniscus lying between the condyles of the femur. It is extremely easy to remove the obstructing piece of cartilage, leaving the attached rim intact.

On the other hand, should the tear be situated posteriorly, or should the posterior part of the cartilage have acquired undue mobility from stretching of its peripheral attachments, nothing will be seen from the front. There are those who practise removal of the whole cartilage from the front in these cases. It is done by detaching the anterior end, severing by knife the rim of the cartilage from the inner tuberosity of the tibia as far back as possible, and forcibly dislocating the cartilage into the intercondylar space, where it is removed by cutting it across as far back as possible. I do not consider this a satisfactory procedure, owing to the fact that sometimes it is impossible, from the front, to separate the cartilage back to the loose or detached part. Attempts then to dislocate the cartilage are attended with more trauma than is desirable, and sometimes the posterior part of the cartilage is left to give subsequent trouble. There is more

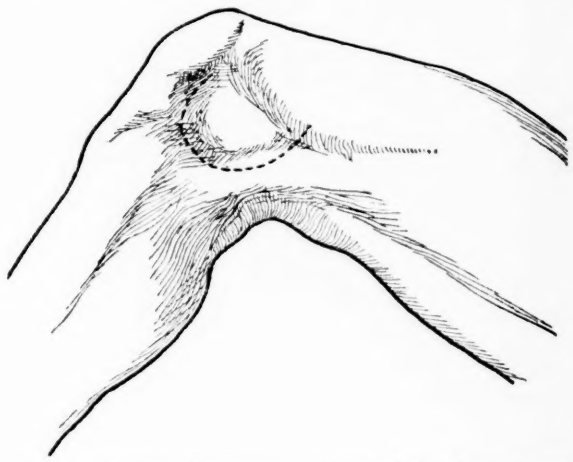


FIG. 2.—Incision for removal of the whole of the internal semilunar cartilage, showing its relation to the bones and surrounding muscles.

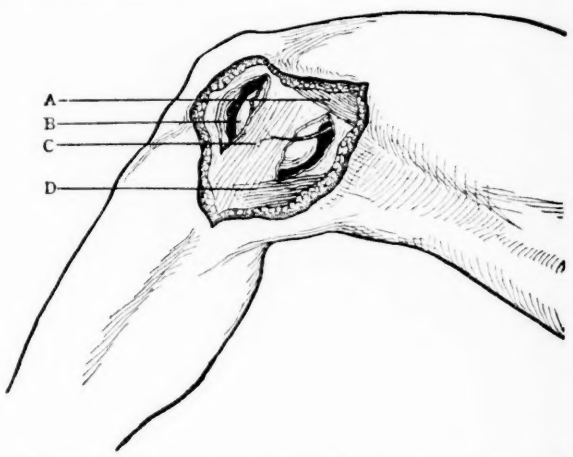


FIG. 3.—Removal of internal semilunar cartilage. A, vastus internus. B, condyle of femur; C, internal lateral ligament with branch of superior internal articular artery; D, sartorius.

reaction in the joint than follows the operation immediately to be described. Therefore the best plan would seem to be:

1. Where the anterior end of the cartilage is split off, or there is a "bucket-handle" injury with intercondylar dislocation, to remove the part detached or pedicled portion only, as this does the least damage to the joint structures, and success is assured. However, a warning must be given here to ascertain whether the periphery of the cartilage is normally firmly attached or has been separated. In one of my patients from whom I removed a "bucket handle," subsequent symptoms of derangement recurred in a few months. On opening the joint the whole of the periphery of the cartilage was separated, except for the two extremities, making a new "bucket handle." I can only conclude that some looseness of its attachment must have been present at the first intervention.

2. Where, on opening the joint in front, the cartilage appears fixed and undamaged, to make another opening in the joint posteriorly to investigate the condition of the posterior end of the cartilage and remove the whole meniscus if this is damaged.

REMOVAL OF WHOLE OF INTERNAL SEMILUNAR CARTILAGE

This is best done by a combination of the usual anterior incision and that for drainage of the postero-internal compartment of the knee-joint. It is convenient to use the

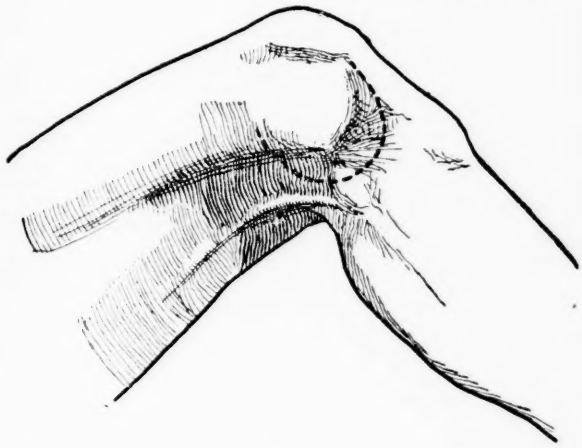


FIG. 4.—Incision for removal of external semilunar cartilage.

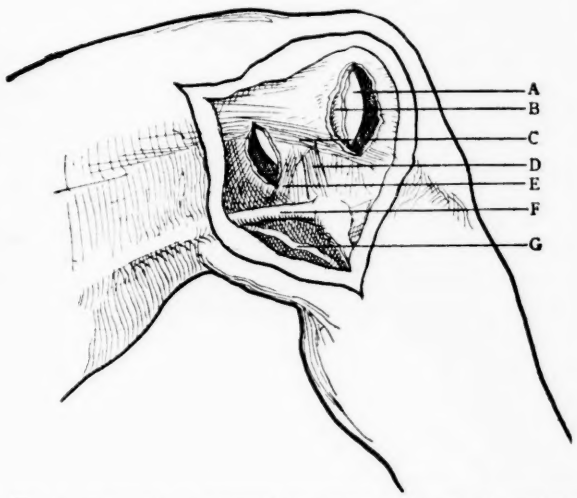


FIG. 5.—Removal of external semilunar cartilage. A, condyle of femur; B, synovial membrane; C, ilio-tibial band; D, external lateral ligament; E, tendon of popliteus beneath capsule; F, tendon of biceps; G, external popliteal nerve.

semilunar flap of skin recommended by Timbrell Fisher. The situation of this incision is indicated in Fig. 2. A tourniquet is not used, as it is preferable to see what vessels bleed at the operation and to tie them. Neither are the knees flexed over the end of the table, because the unaffected limb gets in the way. It is better to have the patient lying on his back with the knee to be operated upon bent to a right angle and held in this position by an assistant, who grasps the foot. While it is inadvisable for the assistant or instrument nurse to touch any instrument, ligature, or swab with the hands there is really no objection to the operator himself using his gloved hands to tie ligatures or to palpate the anatomy of the joints through a sterile cloth. He will be sufficiently skilled to avoid puncture of his gloves or other mishap which might lead to infection. The skin is protected by over-folding cloths in the usual way, and a fresh knife and forceps are used for the deeper structures.

The front of the capsule having been opened and the cartilage inspected, another vertical incision is made in the capsule just behind the internal condyle. A branch of the superior medial articular artery may be met here. It must be divided and ligated. The anatomy of this posterior approach is shown in Fig. 3. A condition of the cartilage having been found which requires removal, the surgeon returns to the anterior incision. He detaches the anterior extremity of the cartilage and separates its periphery from the tibia as far back beneath the internal lateral ligament as he can reach. Grasping the detached anterior extremity of the cartilage in a pair of artery forceps, he delivers it into the posterior wound and makes it emerge, where it is grasped with another pair of forceps. It is now comparatively easy to complete the separation, as there is more space in the posterior compartment of the knee-joint than at first appears. The synovial membrane capsule and skin are sewn up in separate layers. Fine silk may be used as ligature or suture material for everything but skin; it perhaps causes less reaction than catgut. A thick encircling layer of wool with a firm bandage completes the operation. The limb is kept semi-flexed over a pillow; no splint is required. Active contractions of the quadriceps without movement of the joint are begun as soon as the patient can be induced to make them. Active movements of the joints in bed are begun in a few days. He may be up on the eighth day, and encouraged to walk with a stick.

REMOVAL OF WHOLE OF EXTERNAL SEMILUNAR CARTILAGE

This is an operation much less frequently called for, and this is well, since the external cartilage is less accessible than the internal meniscus. The anatomy of the operation is shown in Figs. 4 and 5. The procedure is very similar to that just described, but care must be taken not to cause damage to the tendon of the popliteus muscle. The after-treatment is carried out in the same way.

Conclusions

1. The clinical features are of the utmost significance in the treatment of semilunar cartilage injuries. Typical "locking" is not always present. Its absence in combination with sudden attacks of disability casts suspicion upon the integrity of the posterior part of the cartilage.

2. When clear symptoms have been present, and the anterior part of the cartilage appears normal on exposure, the posterior end must be examined.

3. It is not possible to remove the whole of the cartilage from the front of the joint. A supplementary incision in the capsule should be made behind.

4. When there is a typical "bucket-handle" tear or a pedicled fragment these separated portions of cartilage may be removed without interference with the rest of the cartilage (provided its attachments are firm) and a successful result obtained.

A paragraph in the *Medical Journal of Australia* for July 13th announces that a fund is to be raised to perpetuate the memory of Sir Richard Stawell, who was to have presided over the annual meeting of the British Medical Association in Melbourne. The income from the fund will provide a triennial prize to be awarded for an essay on some medical subject of clinical significance. The award will coincide with each Australasian medical congress, and will be open to all graduates of Australian universities of not more than three years' standing. The honorary treasurer of the fund is Dr. C. H. Mollison, 41, Spring Street, Melbourne, to whom contributions may be sent. It will be administered by trustees appointed by the Council of the Victorian Branch of the Association.

ADDICTION TO ENDOCRINE GLAND EXTRACTS*

BY

S. W. PATTERSON, M.D., D.Sc., F.R.C.P.

PHYSICIAN, RUTHIN CASTLE, NORTH WALES

In bringing forward this subject I found some difficulty in selecting a suitable short title. The term *misuse* would involve far-reaching excursions into debatable regions of medical practice. The word *abuse* is also a wide one, and includes the legitimate denunciation of the use of thyroid for slimming, and of the use of "monkey gland" for the rehabilitation of exhausted roués. Although both of these will be mentioned again, it is with another aspect of the subject that I intend to deal primarily in discussing cases of *addiction* to endocrine glands and extracts. The suitability of the term "addiction" will be considered later.

The endocrine glands have been called the regulators of metabolism. Cannon[1] (1922) points out that they have functions other than that: they regulate growth; they determine the development of intelligence; they fix the appearance of the secondary sexual characteristics and the regular sequences in reproduction; and they control the nature and rate of the chemical changes which take place in the body. There is no question of the importance of the endocrine glands and of their capacity to cause profound disturbances in the above-mentioned processes. The functions of all of them are closely interrelated, but the manner of these interrelationships is very imperfectly understood. It is only fair to ourselves and to a satisfactory development of the knowledge of their activities that we recognize the present limitations of our ability to control these "controllers," and to see clearly the dangers of using careless methods and of making hasty inferences. In our present state of knowledge indiscriminate pluriglandular therapy is not likely to be satisfactory.

Thyroid Gland

More is known about the thyroid than about any of the other endocrine glands. There are syndromes associated clinically with over- or under-activity of the thyroid which can be closely paralleled artificially through thyroid feeding in the one case or thyroidectomy in the other. Further, in the case of the thyroid a substance has been isolated in pure chemical form which is the active principle of the gland (thyroxine, Kendall). The most conspicuous function of the thyroid is the regulation of the rate of oxidation and energy transformation in the living cells of the body. Overactivity of the thyroid is manifested by increased rate of combustion; underfunction by decrease. There is a legitimate use for thyroid therapy in conditions of hypothyroidism, including some forms of goitre, and in myxoedema and cretinism. It is a problem whether thyroid therapy is ever indicated in conditions which are not clearly those of hypothyroidism. It has been stated: "The diseases in which thyroid has been given include nearly all the chronic and many of the acute troubles known to humanity; in some of them it has seemed to benefit; in most it has proved useless."

A further problem is whether it is legitimate to use thyroid in the treatment of obesity. It is probable that it may be used with benefit if combined with restricted diet. The effect of prolonged undernutrition is to reduce the rate of metabolism; that of giving thyroid is to raise it and so help the loss of tissue. But the indiscriminate use of thyroid for weight reduction and self-dosing by the laity may be extremely dangerous. Yet the use of thyroid without a physician's advice in order to reduce weight is quite common.

Cases showing Ill Effects

In the classical case of von Notthafft[2] (1898) a man took 1,000 thyroid tablets in five weeks to reduce his weight; he lost 30 lb. in that time. At the end of the third week the neck became swollen and an irritable cough started. Then followed palpitation, insomnia, severe tremor, and exophthalmos, and at the end of the fifth week great thirst and glycosuria.

Means[3] (1922) quotes data regarding the use of thyroid by the pupils in a girls' boarding school in Massachusetts. The craze among the girls was to be thin and have lithe figures. Many of the girls became severely ill.

Symptoms of hyperthyroidism following thyroid medication in obesity are also recorded by E. Mosler[4] (1924), who quotes six cases of damage from thyroid medication by lipolysin, thyraden, and other thyroid preparations, and by Franke[5] (1925), who has seen four severe cases following the use of lipolysin tablets for reduction. Mosler comments on the risks of cures taken in sanatoria where rapid loss of weight is made, and urges that lipolysin and all other thyroid preparations should be taken only under the prescription of a physician, and their use closely supervised.

Parkins[6] (1929) records the case of a woman patient aged 45, who four years before had had thyroid extract prescribed by her doctor to reduce weight. She had gone on taking it and had taken 11,805 grains in four years, an average of 8 grains of thyroid extract (B. W. and Co.) a day. She was found to be suffering from heart failure and acute pulmonary oedema.

Hyperthyroidism may follow thyroid medication in simple goitre.

Elliott[7] (1907) described a well-developed thyroid toxaemia of a few weeks' standing in a young man of 22 years, who had had a small simple goitre from childhood. Four months before he had been induced to take thyroid to remove his goitre, and, not observing any effect on the tumour, had gradually and steadily increased the dosage, believing the stuff to be harmless. From 15 grains daily—the initial dose—he had attained an average of 75 grains a day, and he asserted that he had taken 200 5-grain tablets during the preceding week. The maximum daily quantity was 150 grains. He had gained perceptibly in weight. Discontinuance of the drug led to prompt subsidence and final disappearance of toxic symptoms.

While hypothyroidism may be successfully treated by supplemental thyroid feeding for prolonged periods—Hardenbergh[8] (1920) quotes a case so treated for twenty years—ignorance or lack of supervision may bring about symptoms of hyperthyroidism. Sir William Hale-White permits me to quote one of his private cases.

"One filthy night—rain and wind—I was called out of town about twenty-five miles after dinner to see an elderly lady said to be very ill. I found this was so. She was the first patient for whom Ord had prescribed thyroid for myxoedema. It did her so much good that she came to regard it as her special tonic, and whenever she felt run down she increased her dose, so that when I saw her she was obviously dangerously ill from thyroid poisoning, which was quite unsuspected by her doctor, who did not know that she was taking it. By good luck I got the correct history; then I saw the tablets, and, needless to say, she got perfectly well, although had matters gone on as they were she must have died."

F. Müller[9] (1927) describes a case in a myxoedematous child following administration of fresh thyroid gland. The mother, in her anxiety for her child's development, went to the slaughterhouse and obtained fresh gland daily as the animals were killed. The child had the usual signs of hyperthyroidism—palpitation and tachycardia, tremor, restlessness, raised temperature, alimentary glycosuria, digestive disturbances, and looseness of the bowels.

From personal communications of doctors I have learned of two patients who produced symptoms of intoxication from taking thyroid under a misapprehension of the nature of their

* A paper read before the Society for the Study of Inebriety on July 9th, 1935.

complaint (Patterson,[10] 1934). One of the earliest cases of this kind was that of a medical student who dosed himself for exfoliative dermatitis, and developed acute mental symptoms and signs of Graves's disease (but not exophthalmos), lasting several weeks after thyroid was stopped (Boinet,[11] 1899).

We have seen that thyroid intoxication may be produced by patients through ignorance, stupidity, or from motives of vanity, but there is another psychological factor which I have described[10] (1934). The effect of thyroid extract is to speed up the metabolism and rate of energy transformation in the body, and it is understandable that there should be a certain tonic effect or increased feeling of well-being. This appeared to be the factor influencing my three patients, who produced toxic symptoms by overdosage.

Rare Symptoms

The usual symptoms of hyperthyroidism have been described already. I may add a few notes on the less usual symptoms which have been recorded. In a few cases exophthalmos has been produced by thyroid medication. E. Möller[12] (1930) has collected eight cases from the literature, and he adds one of his own. Bergstrand[13] (1932), in reporting the post-mortem examination of a fatal case, states that of the eight cases cited in the literature of acute Basedow's disease after treatment with thyroid, three had originally suffered from myxoedema. Moorhead[14] (1931) reports a similar case of a myxoedematous woman who took up to 12½ grains a day of thyroid extract for three years. She developed unilateral exophthalmos as well as the usual symptoms of thyroid intoxication, tachycardia, palpitation, extreme nervousness and restlessness, insomnia, and loss of weight. In the patient I have described,[10] who took large doses of thyroidin at intervals, intense desire to micturate every few minutes and to attempt to evacuate the bowels two or three times every hour was brought about. In another woman with thyroid addiction I observed that auricular fibrillation and congestive heart failure followed bouts of taking thyroid.

Hyman[15] (1930) describes a case of a man aged 49 with osteo-arthritis and a basal metabolic rate of −28 per cent., who was given thyroid, and later thyroxine, and who developed paroxysmal tachycardia. Standish[16] (1916) quotes eight cases from the literature and adds three of his own of retrobulbar neuritis with central scotoma, which are attributed to the use of thyroid extracts. Birch-Hirschfeld and Inouye[17] (1905) found in experiments on dogs that anatomical changes—a degeneration of ganglion cells of the retina, with secondary degeneration of the optic nerve fibres—resulted from thyroidin.

Patients with pluriglandular syndrome and sclerodermia appear to be very susceptible to thyroid products. Sainton and Mamon[18] (1927) report a case in which injections of small doses of thyroxine (in all 6 milligrams in divided doses) produced violent signs of hyperthyroidism.

Adrenal Extracts

When Kaplan[19] (1905) introduced the "hypodermatic" use of adrenaline chloride in the treatment of asthmatic attacks, he recommended doses of 0.3 to 0.6 c.cm. (5 to 10 minims) or more, and said these were harmless. Patients have been described who have taken 15 drops three or four times a day for five years, sometimes as many as thirty injections a day, and without by-effects. Duke[20] (1928) has had a patient who took 4 ounces in twenty-four hours, 2 c.cm. in a dose, every fifteen minutes for prolonged periods of time. Some patients show a remarkable tolerance to adrenaline injections.

Etienne, Richard, and Claude[21] (1926) report a patient who took in two years over 2,000 milligrams of adrenaline without appreciable change in the cardiovascular condition. His hypertensive asthma was much benefited by the treatment. Ricaldoni[22] (1925) has seen a patient who took a daily dose of 6 milligrams for ten years, and then for three years 9 to 12 milligrams; he had 31,000 injections, each of 1 milligram, in thirteen years. His condition Ricaldoni describes as a form of adrenalinomania, kept up not only by the asthma, but by the fear of an attack. His blood pressure remained 120/70, and his heart was only slightly enlarged. In such patients the dose can often be reduced greatly. In any chronic illness it is necessary to be careful; 10, 12, or 15 minims are often given when 2 to 4 minims would be enough.

Duke[20] found 10 to 15 grains of aspirin in whisky to be a substitute, recommending this as much less dangerous than morphine; he gave enough whisky to make the patient lie down and go to sleep, and that was usually the end of the attack.

Lamson[23] (1929) describes three cases of epinephrine addiction in bronchial asthma, in which psychotherapy and the use of a placebo produced a cure.

An asthmatic may develop the habit of taking large amounts of adrenaline at frequent intervals, even though he claims little relief from the drug; the periodicity of injections is often striking. Also, relatively small doses may be effective if given by the physician, but larger ones administered by the patient or by one of his family may fail to give relief. The earlier writers recognized and possibly overemphasized the neurotic element in bronchial asthma. In more recent times this phase of the problem has too often been neglected in favour of specific hypersensitive phenomena. Psychic factors may be largely responsible for the habitual use of adrenaline.

Hoxie and Morris[24] (1920) describe a case of chronic adrenalism in a married woman of 24. For six years she had had continuous asthma throughout the year, aggravated by lying down and worse after eggs, pears, peaches, and other fruits. Since the onset she had been using adrenaline, about 7 c.cm. daily; she was also addicted for a time to inhalations of chloroform. Up till a year before she was also a user of morphine, in amounts not known. All these habits were formed in attempts to relieve the constant dyspnoea. Whenever deprived of adrenaline she became frantic, and if allowed to go on would develop cyanosis of lips and fingers, with loss of radial pulse, and blood pressure readings of 155/140. After adrenaline the dyspnoea would subside and the blood pressure become 160/98. The skin was scarred by hypodermics. The patient died suddenly two and a half hours after injection of 1 c.cm. of adrenaline. Adrenaline and a hypodermic outfit were found concealed in the ward. The post-mortem examination showed mild pleural adhesions, collapsed right lung, enlarged heart with sclerosed coronary vessels, and atheroma of the aorta.

A somewhat similar case is described by Laignel-Lavastine and Bernal[25] (1930)—that of an asthmatic who, when deprived of his injection, committed suicide. The injection in this instance was evatmine, in which adrenaline is mixed with extract of whole pituitary gland. The patient, whose asthma was of twenty-seven years' standing, was accustomed to taking six or seven ampoules of evatmine a day with relief, but later required three ampoules at each injection. Substitution by morphine was tried, but the patient took his life by hanging himself in the hospital ward. In the discussion on this case one patient was quoted who had kept a record of his treatment, and had taken 2,000 ampoules of evatmine without forming a habit. Apart from attacks, he had no desire for the drug; and in an attack the evatmine acted as well as ever.

Flandin[26] quoted a patient who had become accustomed to giving himself 200 to 240 injections in the twenty-four hours of the serum of Heckel, which contains adrenaline. The fear of an attack was enough to call for the injection; and the need for injection survived the cure of the asthma.

Sajous states that the prolonged use of adrenal preparations may induce chronic adrenalinism with severe cardiac disorders, especially of the myocardium, dyspnoea after slight exertion, tachycardia, raised blood pressure, polyuria, icteric staining of the conjunctivae, and increase in weight.

Moure[27] (1928) comments on the dangers of subcutaneous injections of adrenaline, and describes cases of large sloughing wounds on the external surface of the thighs, which required extensive skin grafting.

Hautefeuille and Rinuy[28] (1933) have seen gas gangrene and death after seven injections into the thigh for bronchial asthma of 5 c.cm. a day of the serum of Heckel.

Adrenaline preparations are very useful in the treatment of asthma. The dose required may often be small and yet efficacious. Physicians should be aware of the psychological state and often neurotic condition of their patients; they should supervise and keep control of the treatment, and instruct their patients in cleanliness in the technique of injection.

Use of Other Extracts

Since the introduction of insulin for substitution therapy in diabetes, a new outlook has been opened up for diabetics, and strict dieting is no longer a necessity in order to keep them alive. The increased dietary allowed to the diabetic when it is balanced by sufficient insulin may lead to abuse, but no great proportion of cases of this nature is met with. Indeed,

> " the difference is too nice,
> " Where ends the virtue and begins the vice."

In the case of the gonads the psychological repercussions have been noted in the literature of the world from the earliest times. The desire to regain youth has always been a favourite wish of mankind. The attempts that have been made to bring this about by Steinach, and especially by Voronoff's method of grafting glands from the chimpanzee or baboon, have brought only a transitory increase of vitality (Zondek,[29] 1935). But the knowledge of failure or lack of manly or womanly potentiality may have far-reaching psychological effects; the *amour propre* is wounded, and defensive habits may be formed, as in the following case:

A woman of 33 had had, at the age of 21, one ovary and most of the other removed for cystic disease. The operation was followed by aplastic peritonitis from low-grade infection, and two operations were later carried out to relieve adhesions. The patient's abdominal symptoms subsided. Menstruation, however, became irregular after the ovarian operation, and two or three years later ceased. She suffered considerably from nervous depression, and for many years had weekly injections of an ovarian extract. This she was accustomed to give herself; she was miserable without it, and said she was always better after it. Substitution by other newer, and presumably more potent (because standardized) ovarian extracts was stated by the patient to have no useful effect. She has been under observation now for eight years, and insists on giving herself her weekly injection of the one extract. She has not increased the dose, nor has she shown any tendency to use other drugs. In other respects she is a normal person.

Nomenclature

Though most of the cases of the misuse of endocrine gland extracts which I have quoted are properly an " abuse," some are comparable in their psychological content with instances of overmastery by morphine, heroin, and alcohol, for which the term " addiction " is used.

Though " addict " was used first in 1909 for one who is addicted to the habitual and excessive use of a drug or the like, the word is derived from a very old source. Addicted in Roman law meant delivered over judicially or devoted; hence was derived the sense of being attached by one's own act to a person; hence self-addicted to (" addicted to a melancholy," *Twelfth Night*, II, v, 22; " addicted to wine or strong drinke," T. Taylor (1576–1633)). The noun " addiction " therefore meant in Roman law a formal giving over by sentence of a court, hence a dedication to a master; and the use of the word in the sense of the state of being (self-) addicted to, dates from 1641 (*N.E.D.*)—for example, " addicted to tobacco " (Johnson). In his address to this society in April last on definitions of addiction, Dr. E. W. Adams[30] clearly stated the characteristics of these masterful drugs.

In cases I have quoted in regard to both thyroid and adrenal preparations, these have produced a tonic effect or state of euphoria, a craving and an uncontrollable tendency to revert to the drug after an apparently successful withdrawal. The term " addiction " is, however, not wholly suitable, though most people know what is meant. Nor is the word " habit " satisfactory. Applied to drugs and alcohol, the association of the term is with a bad habit. Thyroid-taking may be necessary in cases of hypothyroidism; its use in excess may be a bad habit, but another word is needed to express the psychological condition in some of these cases. French medical writers use the term " manie," and by attaching it to the drug or substance in question produce a compound word, as *thyroidinmanie*, *evatminmanie*. This is a suitable way of describing the manias of habitual indulgence in certain drugs. Serejski[31] (1928), professor of therapeutics in Moscow, used the term *sucht* (desire). Of his three cases of *thyreoidinsucht*, two were cases of hypothyroidism which had been benefited by taking thyreoidin, and who stole and surreptitiously took it to excess for its tonic effect.

The third, which he labels as *pseudosucht*, was an undeveloped youth of 18, who in his desire to grow had taken so much thyreodin that he had lost count, but he had spent 300 roubles in five months, and had had 180 pituitrin injections—two ampoules a day. The patient noted that he gained but did not lose weight. He was told of the risk to his health, but said if he did not grow his life was no use to him. He later developed schizophrenia simplex.

The word " desire " may be a good one, but Serejski's instances are not like those I am specially dealing with. It would seem that " addiction " is suitable unless we adopt the French term " manie." " Manie " is a useful general term. There are certain cases in which it is not so much the drug as the needle puncture which is the predominant factor, with some psychological element of self-torture or submission to others (masochism). Morel-Lavallée has suggested the term " kentomanie " for these cases.

Summary

In this brief review of the literature a series of cases has been collected of abuse of endocrine gland preparations; in some a habit has been formed comparable with addiction to other masterful drugs. I have pointed out some of the dangers that may follow the injudicious use of thyroid, adrenal, pituitary, and other extracts. It is probably necessary in cases of asthma to hand over a hypodermic syringe and solutions of adrenaline to the patient or to a relative, since the remedy is to be injected at the onset of an attack.

Whenever thyroid is prescribed, especially in conditions other than hypothyroidism, it should be used with the greatest care. Self-dosing with thyroid is highly undesirable. The profession should do its utmost to discourage this practice. In the matter of placing these preparations under the control of the Dangerous Drugs Act there are many difficulties. The husband of one of our patients, a man prominent in public affairs, impressed with the dangers of thyroid gland preparations, made a move with this object; he did not succeed.

It is the duty of medical men prescribing these drugs to exercise proper supervision and control of their use by patients. They should be aware of the possible dangers, and should warn their patients, keeping them under careful observation, so that the drug may be stopped at once if ill effects arise.

REFERENCES

[1] Cannon, W. B.: *Boston Med. and Surg. Journ.*, 1922, clxxxvii, 163.
[2] v. Notthafft, A. F.: *Zentralbl. f. innere Med.*, 1898, xix, No. 15, 353.
[3] Means, J. H.: *Boston Med. and Surg. Journ.*, 1922, clxxxvii, 164.
[4] Mosler, E.: *Deut. med. Woch.*, 1924, l, 1752.
[5] Franke, K. F.: Ibid., 1925, li, 1279.
[6] Parkins, L. E.: *New England Journ. Med.*, 1929, cc, 231.
[7] Elliott, A. R.: *Amer. Journ. Med. Sci.*, 1907, cxxxiv, 890.
[8] Hardenbergh, D. B.: *Med. Record*, 1920, xcviii, 1054.
[9] Müller, F.: *Monats. f. Kinderheilk.*, 1927, xxxvi, 254.
[10] Patterson, S. W.: *British Medical Journal*, 1934, ii, 6.
[11] Boinet, E.: *Rev. Neurol.*, 1899, vii, 564.
[12] Möller, E.: *Acta Med. Scand.*, 1930, lxxiii, 1.
[13] Bergstrand, H.: *Virchows Archiv*, 1932, cclxxxiii, 817.
[14] Moorhead, T. G.: *British Medical Journal*, 1931, i, 442.
[15] Hyman, H. T.: *Amer. Heart Journ.*, 1930, v, 383.
[16] Standish, M.: *Arch. of Ophthalmol.*, 1916, xlv, 469.
[17] Birch-Hirschfeld and Inouye: *Arch. f. Ophthalmol.*, 1905, lix, 3.
[18] Sainton and Mamon: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, December, 1927, p. 1685.
[19] Kaplan, D.: *Med. News*, 1905, lxxxvi XIX, 871.
[20] Duke, W. W.: *Journ. Lab. and Clin. Med.*, 1928, xiii, 1012.
[21] Etienne, Richard, and Claude: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1926, p. 657.
[22] Ricaldoni: Ibid., 1925, p. 1627.
[23] Lamson, R. W.: *Journ. Lab. and Clin. Med.*, 1929, xiv, 931.
[24] Hoxie and Morris: *Endocrinology*, 1920, iv, 47.
[25] Laignel-Lavastine and Bernal: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1930, p. 113.
[26] Flandin: Ibid., 1930, p. 116.
[27] Moure, P.: *Bull. et Mém. Soc. Nat. de Chir.*, 1928, p. 1003.
[28] Hautefeuille and Rinuy: *Journ. de Pract.*, 1933, xlvii, II, 727.
[29] Zondek, H.: *Diseases of Endocrine Glands*, London, 1935, p. 402.
[30] Adams, E. W.: *Brit. Journ. of Inebriety*, 1935, xxxiii, 1.
[31] Serejski, M.: *Deut. med. Woch.*, 1928, liv, 1877.

ESSENTIAL PURPURA HAEMORRHAGICA*

BY

BERNARD MYERS, C.M.G., M.D., F.R.C.P.

Cases of purpura have been reported from the earliest times, and a recent writer has even quoted instances in the Bible. No doubt scurvy and purpura have sometimes been mixed up, but it is evident that definite cases of purpura haemorrhagica occurred thousands of years ago.

In modern times the first to describe the clinical symptoms of purpura was Paul Werlhof (1699–1767), a German physician, who wrote of it in 1735 as "morbus maculosus," as stated by Professor I. Abt.[1] Johan L. Schönlein, born in 1793, described peliosis rheumatica, while another distinguished physician, Edward H. Henoch (1820–1910), described purpuric symptoms accompanied by pain in the abdomen, vomiting, fever, and the passage of blood in the stools. He was aware that in some instances it was associated with rheumatic pain and swelling. The names of Donne, Schultze, Sir William Osler, and Bizzozero are noted in the literature; and Georges Hayem described the platelets, which he stated were much concerned with clotting of the blood. It was in 1889 that Denys recorded that the blood platelets were diminished in purpura haemorrhagica. W. W. Duke of Johns Hopkins University was the first to describe the prolongation of the bleeding time in the disease. E. Glanzmann (University of Berne) was of opinion that the Schönlein and Henoch types of purpura were anaphylactoid. E. Frank (University of Breslau) described the disease as essential thrombopenia. He was of opinion that purpura could not occur without some damage to, or increased porosity of, the capillaries. Finally, great credit is due to Paul Kaznelson, who in 1916 was the first to suggest splenectomy for purpura haemorrhagica, and certainly there have been some brilliant results from this operation when performed in suitable cases.

*Delivered at the Biennial Conference of the New Zealand Branch, British Medical Association, February, 1935.
[1] *Amer. Journ. Dis. Child.*, February, 1935.

Varieties of Purpura.—Purpura is usually divided into (*a*) primary, and (*b*) secondary. Examples of the secondary type are certain blood diseases such as leukaemia, pernicious anaemia, and aplastic anaemia; haemolytic jaundice, Gaucher's disease, carcinomatosis of the bone marrow; infections such as cerebro-spinal fever; and the type following the use of chemical substances such as iodine, benzol, etc. The primary form can be subdivided into (1) haemorrhagic purpura (purpura simplex, purpura haemorrhagica, and purpura fulminans), and (2) anaphylactoid purpura (Henoch's and Schönlein's purpura). It seems certain that some of the cases of anaphylactoid purpura, and also a number of cases designated as haemorrhagic purpura, are by no means all primary, and future investigation will demonstrate which cases are really primary.

Essential Purpura Haemorrhagica

In this type, in addition to the purpuric spots present in the skin and mucous membrane, there is also bleeding from one or more areas of mucous membranes, such as the nose, gums, mouth, uterus, urinary tract, intestinal tract, stomach, etc. The haemorrhages may be accompanied by anaemia, which is sometimes severe. Occasionally a raised temperature is present. The general condition of the patient may be stated to vary in accordance with the loss of blood.

In my experience *the spleen is not enlarged* in these cases either clinically or as seen at operation or after examination by the pathologist. Of course there may be cases in which the spleen is enlarged temporarily. Certain tests are invaluable in the elucidation of this type—thus the presence of *thrombocytopenia* (the platelets being reduced from the normal figure of about two to three hundred thousand to forty thousand or less, and sometimes no platelets being seen at all for a time; *increased bleeding time* (from what is usually accepted as normal—namely, three to four minutes) up to twenty to thirty minutes or even ninety minutes or more in rare cases; a *positive capillary resistance test* (estimated by placing a rubber bandage or the armlet of a blood pressure instrument around the upper arm and keeping the pressure midway between the systolic and diastolic for three minutes, when, if positive, haemorrhagic areas appear between the wrist and the lower end of the bandage). There is also described a *flat-topped blood clot*, but this cannot be looked upon as diagnostic, for it is present in a number of other complaints. The blood coagulation is practically normal, in marked contrast with haemophilia.

Acute, chronic, and intermittent forms of essential purpura haemorrhagica are described. The disease should always be looked upon as a serious malady, for a case which may not appear to endanger the life of the individual may terminate with tragic suddenness.

Two Case Reports

I have had five typical cases of essential purpura haemorrhagica, all of which have been cured by splenectomy. The notes of two, both of which were operated on nine and a half years ago, are recorded below.

CASE I

Winnie B., aged 10 years, was admitted to the Royal Waterloo Hospital on 12/7/25. She was bleeding from the gums and nose, and a number of purpuric spots were present on the body and also some bruises. During the previous year she had attended the hospital for purpura as an out-patient.

Examination.—The patient was suffering from continuous oozing from the gums, which did not respond to any treatment. The temperature was 98.6° F., pulse 106, and respirations 24. Nothing abnormal was observed in the heart, lungs, or abdomen. The tonsils were enlarged. She was subject to

constipation. There was no history of melaena, and no known case of purpura existed in the family.

Further Observation.—12/9/25: Transfusion of 150 c.cm. of 0.25 per cent. citrated blood. 27/10/25: Much improved since transfusion, but gums still bleeding. Haemoplastic serum 2 c.cm. given intravenously, also calcium salts by the mouth. Both were quite useless. 30/10/25: Joint pains present. Spleen not palpable. 31/10/25: Red blood corpuscles, 3,900,000; haemoglobin, 45 per cent.; colour index, 0.5; white blood corpuscles, 5,000 (polymorphs 44 per cent., lymphocytes 53 per cent., eosinophils, 1 per cent., transitional cells 2 per cent.); no platelets seen; the red corpuscles were reported as very pale; anisocytosis was present. 10/11/25: Red blood corpuscles, 4,984,000; haemoglobin, 42 per cent.; colour index, 0.43; no normoblasts or megaloblasts; average size of corpuscles not increased. White blood corpuscles, 4,800 (mast cells 2 per cent., leucoblasts 3 per cent., and lymphoblastic plasma cells 2 per cent.); only two blood platelets were seen in each whole slide. Bleeding time was twenty minutes; capillary resistance test positive. Nothing abnormal was found in the urine or faeces, and there was no evidence of any primary cause.

Diagnosis and Treatment.—With such a clinical history, and with thrombocytopenia, prolonged bleeding time, and a positive capillary resistance test, the diagnosis of essential purpura haemorrhagica could be made. As the gums had been bleeding for over eight weeks and no treatment had had any effect in stopping it, I asked Mr. Maingot to perform splenectomy, which he did on 13/11/25. The following are the blood picture figures immediately following the operation.

Date	R.B.C.s	W.B.C.s	Hb %	Platelets	C.I.
14/11/25	4,800,000	26,000	30	50,000	0.3
16/11/25	5,620,000	21,600	65	281,000	0.6
21/11/25	5,584,000	11,200	68	310,000	0.6

Five per cent. of the myelocyte group were present on November 14th, but none were seen on 19/11/25. Four of us noted that within ten minutes of the clamping of the splenic vessels oozing from the gums ceased. It has never recurred. The patient made an uninterrupted and perfect recovery.

Spleen Examination.—Dr. K. Gordon observed endothelial proliferation in the spleen and the presence of phagocytic cells. Since the operation the capillary resistance test has been carefully done every six months, and has always been negative. The bleeding time has been between three and four minutes; the clotting time was about four and a half minutes. Further progress is shown in the table below (a blood count made by Dr. Knott).

	10/2/30	24/2/31	21/11/32	10/9/34
Red cells	4,100,000	4,460,000	4,650,000	4,500,000
Haemoglobin ...	72%	82%	79%	82%
Colour index ...	0.88	0.98	0.84	0.91
White cells	6,200	6,750	6,700	7,500
Polymorphs	36%	50%	51%	66%
Lymphocytes ...	41%	36%	36%	24%
Hyalines	20%	10%	10%	7%
Eosinophils	3%	3.5%	2%	2%
Basophils	—	0.5%	1%	1%
Platelets	120,000	175,000	110,000	128,000

Result.—A letter received from the patient early last October stated that she had enjoyed the best of health and had been quite free from purpuric spots since the operation, there had been no signs of bleeding from mouth or nose, and that menstruation was regular and normal. No excessive bleeding had followed dental extraction. Recent examination of this patient confirmed the excellence of her health. She is able to work at a milliner's from 9 till 5 daily without any ill effects or any symptoms of exhaustion.

CASE II

Mrs. E. D. was first admitted to the Royal Waterloo Hospital in 1909, when 13 years old. The notes state that she had a "black-red" rash all over her body, and that two days before admission there had been considerable bleeding from the throat and nose and an effusion of blood under the right sclerotic; slight abdominal pain had been complained of, and the vomited blood had always been clotted.

Early History.—Four years previously, when 9 years of age, severe epistaxis occurred without any other symptom. I suggest that this was her first symptom of purpura. No other member of her family suffered from purpura. On examination a haemorrhagic rash was found scattered all over the body and limbs, but not on the neck. She suffered from an attack of severe epistaxis, the bleeding being eventually controlled by plugging. Loss of blood made her distinctly anaemic. The urine was dark red, and contained much blood. The case notes on 29/6/09 state: "Blood-stained discharge from left ear; gums swollen and bleeding, fresh crop of purpuric spots." On 5/11/09 the report is: "Conjunctival haemorrhage in left eye. No albumin in the urine; child still bruises easily." During the period she was in hospital the temperature was usually normal, only occasionally going up to 99° F. The pulse varied from 80 to 130. Menstruation began at 13, lasting usually five days, and occurred every three to five weeks. Floodings, lasting from two to three days, sometimes accompanied the menstrual flow from the age of 14 to 16. The periods were normal from 16 until she was 24. She was married at 23, and had a baby during the next year. After the birth there were haemorrhages from the gums and purpuric spots on the trunk, limbs, face, and right eye. Several ecchymoses were present. There was a markedly blood-stained discharge from the vagina. The heart was normal in size and rhythm. Other notes on the case state that on 5/10/21 the catheter specimen of urine contained a good deal of blood, there being marked bleeding from the uterus and vagina. At this time there were fresh petechiae on the body, and the gums were again oozing. On 18/10/21 the patient passed a large blood clot the size of a hen's egg; her colour was described as worse, and she felt weaker. Temperature and pulse were raised. Examined under an anaesthetic at this time an offensive blood clot was removed from the vagina and a swab from the uterine cavity contained a few streptococci and some *B. coli*. Pituitrin was given, also normal horse serum, and then transfusion of human blood and antistreptococcic serum. Later haemostatic serum was tried, followed by a sensitized *Streptococcus pyogenes* vaccine. The only thing that had any effect in stopping the bleeding was the blood transfusion. The subsequent history shows that the patient suffered on and off from attacks of purpura, sometimes markedly severe, and menstruation was so dreaded on account of severe loss of blood that she always sought admission to hospital during her periods.

Author's Examination.—I first saw the patient in September, 1924. She was a typical case of purpura haemorrhagica. The bleeding time was seventeen minutes, and the capillary resistance test markedly positive after two and a half minutes. Platelets were almost completely absent, blood coagulation time being two minutes twenty seconds. The blood count varied directly with the bleeding, being sometimes normal, but after a very severe haemorrhage it showed a red cell count of just over two millions. There was nothing special about the differential count except that sometimes the lymphocytes were a little raised and the polymorphs a little down. No abnormal red cells were seen. Platelets varied from one or two hundred thousand to *nil*.

Further Observation and Treatment.—During the next fifteen months I carefully observed her condition, and found that the only treatment which effectually stopped the bleeding for the time was the transfusion of 0.25 per cent. citrated blood. The good effect of this, however, only lasted from ten to fourteen days, when there was a gradual recurrence of symptoms. The case being one of essential thrombocytopenic purpura haemorrhagica and her life being in danger, I therefore asked Mr. Maingot to do a splenectomy. This was performed on 15/1/26. At no time had the spleen been palpable, and at operation it was found to be of normal size. Blood from the splenic artery and vein was obtained at the

operation for platelet count by Dr. Knyvett Gordon, the figures being 325,000 and 65,000 respectively. Two days after the operation the platelets rose to 197,000, and a few days later to 300,000 per c.mm.

Result.—On 2/2/26 the capillary resistance test was quite negative. No purpuric spots and no haemorrhages from mucous membrane have occurred since operation. The patient has been in perfect health since the operation nine and a half years ago, and quite free from any symptom of purpura. The menstrual periods have been normal in every way. The bleeding time has been normal, and the capillary resistance test constantly negative. Since splenectomy she has had several teeth extracted with only the usual loss of blood, and even a miscarriage a few years ago was accompanied only by normal loss of blood, thus contrasting markedly with the severe loss of blood after the birth of her child previous to splenectomy. On 5/9/34 Dr. Knott did a blood count, which showed: red cells, 4,540,000; haemoglobin, 76 per cent.; colour index, 0.83. The white cells were 6,600 (polymorphs 60.5 per cent., eosinophils 2 per cent., basophils 0.5 per cent., and lymphocytes 31 per cent.). The platelets numbered 185,000. The red cells were reported to be a little pale. A letter from the patient a few months ago stated that since the operation she had gained weight and felt in excellent health.

Collected Data in Five Cases

It may be of interest here to record a few observations based on my five cases of essential purpura haemorrhagica. Of the five patients four were female and one male. The ages at which the first symptoms were noted were: Case 1, 9 years; Case 2, 9 years; Case 3, 6 years; Case 4, 6 years; Case 5, 9 years. The age when splenectomy was performed was: Case 1, 10 years; Case 2, 28 years; Case 3, 6 years; Case 4, 6 years; Case 5, 11 years. The duration of symptoms at time of operation was: Case 1, one to four months; Case 2, over seventeen years; Case 3, one month; Case 4, four days; Case 5, one to four months. Cases 3 and 4 were acute, and the remaining three chronic. The time that has elapsed since splenectomy is as follows: Case 1, nine and a half years; Case 2, nine and a half years; Case 3, nine and a half years; Case 4, four years; Case 5, two years. There has been no return of purpuric symptoms in any of the five cases since splenectomy. Ordinary knocks have caused no bruising since splenectomy, contrasting with severe and easy bruising previously. The present health of all five patients is perfect. Case 2, which suffered from severe menorrhagia previous to splenectomy, has had normal menstruation since. Case 1 has commenced menstruation since splenectomy, which is always normal and never excessive.

Below platelet count, bleeding time, and capillary resistance are set out in tabular form.

Platelets

Case Number	1	2	3	4	5
Lowest count before operation	0	? 0	0	16,000	20,000
Count five days after operation	166,000	300,000	250,000	90,000	150,000
Count from splenic artery and vein at operation	?	A.—325,000 V.— 65,000	A.—168,000 V.— 56,000	?	?

Bleeding Time

Case Number	1	2	3	4	5
Before operation (time in minutes)	20	17	15	90	20
Time after operation	Normal	Normal	Normal	Normal	Normal

Capillary Resistance Test

Case Number	1	2	3	4	5
Before operation ...	Positive	Positive	Positive	Positive	Positive
After operation ...	Negative	Negative	Negative	Negative	Negative

Statistics

John de J. Pemberton, in *Collected Papers of the Mayo Clinic and Foundation*, stated that from 7/3/23 to 1/1/31 splenectomy was performed for purpura haemorrhagica at the Mayo Clinic in forty-one cases, with two deaths. Of the thirty-nine living patients thirty-six were reported well, two fair, and the condition of one poor. I am indebted to the Librarian of the Royal College of Surgeons of England for the following information sent to me during September, 1934. The total cases of thrombocytopenic purpura haemorrhagica for which splenectomy had been performed which he traced was 233. Of these there had been 173 cures, thirty deaths, one incomplete cure, seventeen improved, six unimproved, and six unknown.

Diagnosis

One might describe essential purpura haemorrhagica as an idiopathic disease, which may be acute or chronic and intermittent. It is characterized by the appearance of purpuric spots on the skin and spontaneous haemorrhages from one or more mucous surfaces—often resulting in anaemia—in which there are prolonged bleeding time, distinct diminution in the number of platelets, a positive capillary resistance test, generally a normal coagulation time, and a flat blood clot. The differential diagnosis has to be made from haemophilia, aplastic anaemia, lymphatic leukaemia, scurvy, hereditary haemorrhagic telangiectasis, and also from symptomatic purpura and hereditary thrombasthenic purpura. The points of importance are the personal and family history, the clinical history of the case, the performance of careful clinical examination, complete blood investigation, and the various tests mentioned above, such as bleeding time, coagulation time, etc. A proper appreciation of the information afforded should determine the diagnosis.

Prognosis

Before splenectomy was performed for this complaint there was always a distinct risk of a grave ending, which may occur quite suddenly. In my experience both acute and chronic cases are suitable for operation provided the diagnosis is definitely established. It is a matter of some importance that search should be made at the operation for accessory spleens, and that, if found, they should be removed lest their presence determine a recurrence of purpura. In my own experience all five patients remain in perfect health and quite free from any symptoms since splenectomy, which in three instances was done over nine and a half years ago.

Treatment

As a temporary measure in severe bleeding from purpura haemorrhagica blood transfusion is distinctly valuable in stopping the haemorrhage, but the good effects are only likely to last for from ten to fourteen days. In my own experience neither drugs nor thromboplastic serum are of any real use. Tying the splenic vein has been practised by some, but if the causative agent should prove to be a toxic substance present in the spleen splenectomy is preferable. Splenectomy in suitable cases is the treatment to be adopted. At the same time the operation should never be lightly undertaken, as is sometimes sug-

gested, without due regard to all circumstances of the case, in the same way that obtains before appendicectomy or tonsillectomy is performed. I know of an unusual case of leukaemia, diagnosed incorrectly as essential purpura haemorrhagica, in which splenectomy was performed with quickly fatal results. It is wise to put normal saline solution into the peritoneal cavity before closing up the abdomen.

The usual practice is not to do a splenectomy if the red cells are below 2 million per c.mm., and only then after a blood transfusion ; but in one of our cases, a girl aged 2 years, suffering from Gaucher's disease with an enormous spleen, whose red cell count was just under a million and haemoglobin content 16 per cent., had splenectomy performed forthwith, as her condition was so desperate that she would not have lived for more than a day or two. The child made a perfect recovery, and had a normal blood count after a few months.

Pathogenesis

Much has been written under this heading, but a brief reference will suffice.

Tidy (*British Medical Journal*, December 27th, 1930) stated: " (1) The haemorrhages in the haemorrhagic diathesis are primarily due to increased permeability of the capillary endothelium. (2) Blood platelets normally protect the capillary endothelium, and the diminution in number observed in the haemorrhagic diathesis is secondary to this action." Against these suggestions I would mention that after splenectomy in genuine cases of essential thrombocytopenic purpura haemorrhagica there are usually no further haemorrhages from the same capillaries that bled before the operation ; there cannot, therefore, be an inherited or acquired defect in the capillaries. The cause must thus be looked for elsewhere. Against the second point I would like to quote the following case.

A patient of mine suffered from secondary purpura, apparently due to *Streptococcus haemolyticus*, and drawing one's hand across her chest produced a large haemorrhagic area in which occurred the usual changes of colour. I asked Dr. Knyvett Gordon to estimate the platelets in her blood, and then produced haemorrhagic areas on the chest as above stated. After a period of fifteen minutes the blood platelets were again estimated. The result showed that the platelets before and after production of bruises numbered 300,000 each time.

It would be interesting if the above experiment could be checked by another observer ; should the observation be corroborated we would have to look for another cause for this form of purpura.

It has for some years seemed to me that the cause of essential purpura haemorrhagica is probably the presence of a toxic substance in the spleen, which affects the permeability of the capillaries and also in some way influences the number of thrombocytes in the blood. In my experience of five cases there have been no purpuric symptoms since the operation, and the thrombocytes, after the immediate initial rise, have settled down at a level of about 150,000 per c.mm. I would again suggest that the cause is probably a toxic substance present in the spleen, and that after splenectomy the toxic agent, which had previously affected the capillaries, enabling blood to penetrate through them and produce haemorrhages, must have been removed with the spleen, as otherwise we should probably see a continuance of the bleeding instead of its cessation. If this hypothesis is correct it would be interesting to try the effect of an extract from one of the excised spleens from an essential thrombocytopenic purpura haemorrhagica case on suitable animals, such as guinea-pigs and rabbits, and observe whether purpura results. Or again, the serum from an active case of this disease could be injected into an animal and the effect watched. Should purpura result some serum from the same patient could be injected again when the patient has no longer any symptoms of purpura, and the results compared. Would the preserved serum from an active case cause purpura if injected into the patient himself during a quiescent period? A similar experiment could be performed on the splenectomized patient a few weeks after the operation.

It seems not unlikely that the same toxic substance in the spleen is chiefly responsible for the excessive loss of platelets which usually occurs in this type of purpura. The explanation of the long intermissions that not infrequently occur between bleedings is certainly difficult. It might signify that the presumed toxic substance in the spleen is only formed in sufficient amount to cause symptoms under certain suitable conditions, the nature of which is at present obscured. In my cases (1) and (4) a number of witnesses noted that the free bleeding from the gums ceased within a few minutes of tying the splenic vessels ; further, the bleeding never returned. This seems to suggest that the toxic substance when formed in the spleen quickly finds its way into the circulation affecting capillaries so that haemorrhages occur. On the other hand, when the toxic substance is no longer poured into the blood stream the tendency of the capillaries to bleed ceases almost at once.

Knyvett Gordon states that in essential thrombocytopenic purpura haemorrhagica he found the appearances markedly uniform. The Malpighian follicles were unaffected, except sometimes for slight thickening of the central artery of the stalk, to which he was not inclined to attribute any special significance. The pulp, however, was crowded with proliferating endothelial cells derived from the lining of the venous sinuses. In addition, he found large multinuclear giant cells in which polynuclear cells and platelets, and in some cases red cells also, were enmeshed.

It is well known that accessory spleens are frequently found in the abdomen, and that occasionally large numbers are present. In our series of cases Maingot found that in thirteen cases of essential thrombocytopenic purpura haemorrhagica in which he did splenectomy four had one splenculus each, the average size being that of a marble. One case had two, and two cases had three or more splenculi. In 53.1 per cent. splenculi were found. A splenculus was microscoped in one case, and similar pathological changes were evident to those seen in the parent spleen.

Two years ago a surgeon stated before the Clinical Section of the Royal Society of Medicine that he had removed the spleen of a case of acholuric jaundice with excellent result for six months, after which the symptoms recurred. Upon reopening the abdomen he discovered a splenculus that had grown to nearly full size. This was removed, and although some years have now elapsed no further symptoms of the original disease have reappeared. It would thus seem to be a sound procedure when symptoms of purpura recur after splenectomy to reopen the abdomen and search for an accessory spleen, which, if present, should be removed.

Those of our readers who served in the Near East during the war may be interested to learn that a reunion pilgrimage cruise to Gallipoli and Salonika has been arranged by a committee of ex-servicemen. The cruise will leave Liverpool on May 1st, 1936, returning on May 23rd. Fares will range from 21 guineas, one class only, and calls will be made at Malta, Gallipoli, Salonika, and Istanbul. Full particulars can be had from the joint honorary secretaries, Gallipoli and Salonika Pilgrimage Committee, 3, Shaftesbury Avenue, Chesterfield.

A NOTE ON HIGH BLOOD PRESSURE

BY

J. HARTSILVER, M.R.C.P.

The treatment of high blood pressure and its depressing symptoms and complications is of sufficient importance in general practice to warrant the following observations, which may be of value to others.

During the last few years I have had under observation 147 cases, readings above 150/90 being regarded as pathological. In less than one-third of these no symptoms could be attributed to the high blood pressure.

Most of the routine treatments were tried in different cases, blood pressure being charted, thus showing any rise or fall from treatment or drug used at a given period. Apart from rest and administration of sedatives, perhaps sodium phenobarbital 1 grain was the most useful in relieving the severe headache and insomnia. *No improvement whatsoever in blood pressure or symptoms was observed* from the following preparations: potassium iodide, tincture of iodine (French and English), thyroid gland alone or with potassium permanganate, ovarian extract, pacyl, detensyl, acetylcholine, sodium nitrite, trinitroglycerin liquor T.N.T. A careful trial of veratrine in the form of the tincture (by the mouth) was made for two weeks some eight years ago on a hypertensive woman who has since died of carcinoma of the colon; no alteration in the blood pressure occurred. Unfortunately her readings have been lost. Vaso-dilators are no longer considered of value by a number of authorities (Lewis, Beddard, Pickering, and others).

Treatment by Semi-starvation

Forty-eight cases were treated by semi-starvation, the following diet being used:

8.30 a.m.—A cup of hot water or lemon water and sugar. Liquor from stewed or tinned fruit.
9.30–10 a.m.—Orange juice or grape-fruit juice.
1 p.m.—Vegetable soup (1 pint of hot soup).
3 p.m.—Hot water or lemonade and grapes.
5 p.m.—Orange juice, hot or cold.
7.30 p.m.—Vegetable soup.

Method of Preparing Vegetable Soup.—No meat extract and no bones to be used. Boiled potato water. Choose any or all of the following for flavouring, using a dessertspoonful of the dried vegetables when fresh are not available—turnip and onion, celery, carrots, peas and shells, beans. Boil, thicken, and add soaked, dried peas or beans. Strain off solids. Salt and pepper *ad lib.*

The patient remains on this diet for six days; on the seventh he eats what he likes, thus probably restoring nitrogen equilibrium. It was observed that only a moderate amount could be eaten on this day. This diet is repeated each week so long as the symptoms improve, until the blood pressure approaches normal or there are signs of increasing weakness. Should the patients feel faint at any time tea or brandy is permissible. If the pangs of hunger become intolerable green vegetables and tomatoes can be eaten and soup need not be strained.

The relief of symptoms is dramatic. Headaches and insomnia disappear in three days, blood pressure falls rapidly in 90 per cent. of cases, and giddiness and dyspnoea are commonly relieved by the end of the first week. In nearly all cases (90 per cent.) the benefits of this rather unattractive diet are so obvious to the patient that he willingly perseveres with it, and returns to it when necessary.

Though the blood pressure may return to its previous level in a short time after a moderate diet is resumed, the symptoms may not recur for considerable periods, and quite a number of totally incapacitated patients have even been able to work again, full- or part-time. The loss of weight improves the cardiac reserve, and the semi-starvation relieves the kidneys, as shown by the disappearance of albumin. It is possible that in addition a tonic or toxic substance may be removed from the circulation or blood vessel walls, or, if a nerve mechanism is causing hypertension, this may be damped down by semi-starvation. A further important factor is the effect of the absence of first-class protein and fat from the diet.

Should a patient be told when high blood pressure is found during a routine examination? Probably, in the majority of cases he should be told. He can then be made to understand the necessity for modification in his way of life; he is less likely to misinterpret early symptoms and dose himself with patent medicines, and by periodical recourse to the semi-starvation diet he may succeed in warding off severe symptoms and complications for many years. Moreover, exercise and even work in moderation may be possible.

Aetiology

With regard to aetiology, it is interesting to note that throughout the series there was no history of syphilis (all Wassermann reactions were negative), of alcoholism, or of lead poisoning. In some cases there was chronic nephritis; but then hypertension occurs in eclampsia—a case of which has not been seen since "house-surgeon" days and not at all in a busy general practice in nine years. A large number of hypertensives are non-smokers. Moreover, quite a number are *not* big meat-eaters. In my opinion, and in that of others (Lewis), meat, whether red or white, is not harmful in moderation—that is, its calorie value only matters. On the other hand, a large number of hypertensives are big eaters, which means that total calories—for example, carbohydrate and starchy food in sufficient quantity—may be a factor accelerating the march of the disease.

The nervous condition of the majority of patients with high blood pressure is noticeably affected. One would say that, so far from blood pressure takings *causing* neurosis, hypertension has a marked effect on the nervous system, rendering the patient extremely irritable or nervous, without his even having any knowledge as to the diagnosis. Hence the presence of the complaint in teachers, big business men, domestic servants, and people with small families. The woman with one, two, or no children is notoriously more nervous and apprehensive than the mother of a large family.

The symptoms of hypertension for which blood pressure should always be tested are severe headaches, especially when occurring after 40, dyspnoea, giddiness, low specific gravity urine and albuminuria, neuritis in the extremities, and especially signs of heart failure, congestive or anginal, in the absence of history of heart disease.

Three cases of epistaxis showing hypertension have been treated. In none of these was the epistaxis treated. It seems a natural safety valve. Recovery occurred to the extent of 50 mm. drop (systolic) in one reading and 30 mm. in another, with considerable general constitutional improvement. Is its action an indication for venesection in treatment of hypertension? In all these patients epistaxis was severe enough to produce marked pallor and weakness. In one patient it necessitated bed for ten days; another is a case of hemiplegia bed-ridden for seven years. My experience of the results of venesection, however, have been so consistently poor that I seldom use it.

Treatment in Cases with Few Symptoms

The above diet treatment is applied to those cases in which there are acute symptoms and a considerable degree of hypertension. What should be done in those early

cases in which there is a rise in blood pressure with few symptoms—for example, severe headache, slight giddiness, or insomnia with high tension? Three have come under observation: in one the patient had slight giddy turns and headaches, and in the other two there were headaches only. The blood pressures were: (1) 204/104 (E. W. P., aged 57, May 20th, 1935); (2) 186/88 (H. J. E., aged 76, July 18th, 1935); (3) 176/104 (G. S., aged 64, April 2nd, 1935). Inquiry into the patients' diets showed that all were very big eaters; two were considerably overweight.

In view of the fact that they were fairly fit otherwise, it was decided to try the effect of a moderate reduction of diet as against the standard, which is approximately six hundred calories a day without first-class protein and fat. The effect of cutting down the diets has been, in a very short time (a few weeks only), to reduce their blood pressure to little above normal, with complete disappearance of symptoms. It is hoped that these patients will not become incapacitated at all as a result of this early treatment.

It will be interesting to observe the effect of the complete return to normal diet. Two of the three patients have not left off their work—one is an architect and the other a company secretary, both very busy men. In the event of subsequent rises in blood pressure and symptoms, a return—possibly only temporary—of diet restriction will be advised, when a similar improvement will be looked for and expected.

It may be asked whether the remedy is not worse than the disease. To those who live for their food it most certainly is. On the other hand, the diet is only for a period, six to eight weeks being the average for a severe case, and on one day out of seven the patient can eat as much as he likes. Even alcohol in moderation does not make much difference. The calorific value of the diet is the chief consideration. One patient whose blood pressure has gone down on a moderate diet consumes a bottle of whisky a week and half a bottle of Moselle.

To feel well, to work, and even to indulge in walking as an exercise—all these things are possible in the majority of cases treated by this diet, with the addition of a reasonable amount of rest. Moreover, complications, whether they be cardiac, cerebral, or renal, certainly appear, in my experience, to be minimized in 90 per cent. of the cases treated. Fortunately the results appear quickly enough to persuade the patients themselves, otherwise the diet is stopped—usually after two weeks' trial.

Concerning the 10 per cent. of failures more will be said after further study.

I should like to express my thanks to Sir Thomas Lewis for reading this note and for his valuable suggestions and comments.

The instrument used in this investigation was a "tycos," on account of its size and extreme portability. Frequent testing by Messrs. Tycos and Gardners of Hove proved its reliability.

BIBLIOGRAPHY

Ayman, D.: *Arch. Int. Med.*, 1934, liii, No. 5.
Boeckeart and Heymans, C.: *Journ. Physiol.*, July 28th, 1933.
Cain, E. F.: *Arch. Int. Med.*, 1934, liii, No. 6.
Cohen, Fineberg, and Rudolf: *Amer. Journ. Med. Sci.*, 1933, clxxxvi, 35.
Donnison: *British Medical Journal*, 1934, i, 704.
Fishberg: *Hypertension and Chronic Nephritis*, 1934.
Gager: *Hypertension*, 1930.
Gunewardene: *British Medical Journal*, 1933, ii, 1114.
Halls Dally: *High Blood Pressure*, 1934.
Holmes, M.: *New York State Journ. Med.*, 1934, xxxiv.
Keele, C. A.: *Quart. Journ. Med.*, April, 1933.
King, J. T.: *International Clinic*, 1933, ii.
Lewis: *Disorders of the Heart*, 1933.
Major, R. H.: *International Clinic*, 1933, ii.
Mosenthal, H. O.: Ibid., 1933, ii.
Parsons-Smith: *British Medical Journal*, 1935, ii, 1034.
Paullin, J. E.: *International Clinic*, 1933, ii.
Sigler: *Amer. Journ. Med. Sci.*, July, 1933.
Sparks: *Arch. Path.*, April, 1935.
Spriggs, E. I.: *Transactions*, London Medical Society, 1929, lii, 116.

SCARLET FEVER: ATTEMPTED IMMUNIZATION IN A PUBLIC SCHOOL

BY

L. R. LEMPRIERE, M.B., CH.B.

MEDICAL OFFICER TO HAILEYBURY COLLEGE

The following record of attempted immunization against scarlet fever during an outbreak at a public school in the Easter term of 1935 may be of some interest. Scarlet fever epidemics of any magnitude are rare at a public school: in this particular school the records during seventy-three years only once show a larger total (seventeen cases). During the last fifty years there have been forty-eight cases in eighteen outbreaks, and in the last ten years five cases in four outbreaks. In fifty years the percentage of boys with a history of a previous attack of scarlet fever on entry into the school has fallen from 12 to 5.9.

In the epidemic under review there were fifteen cases of scarlet fever out of a boy population of 495—that is, 3 per cent. The first case was admitted on January 28th, and all his immediate contacts (sixteen in number) were Dick-tested. Those found positive were passively immunized with 5 c.cm. of scarlet fever streptococcal antitoxin. The same procedure was adopted with the next two cases. On February 5th fourteen contacts, and on February 8th twelve contacts, making a total of forty-two cases, were passively immunized. On the occurrence of the fourth case, on February 9th, it was recognized that the attempt to cut short the epidemic by this method had failed, the four cases being all in different houses and in three different forms. After consultation with Dr. J. Alison Glover of the Board of Education and Drs. Scott and Griffith of the Ministry of Health, it was decided to attempt active immunization of the school as a whole.

Institution of Active Immunization

Accordingly, the consent of parents was invited in a circular letter sent out on February 11th, and Dick-testing was carried out with the following results. Of 495 boys in the school 405 (81.8 per cent.) were Dick-tested, ninety (18.2 per cent.) not being tested. Of the tested boys 288 (71.11 per cent.) were positive, twenty-three (5.68 per cent.) very faintly positive (P – –), three (0.74 per cent.) "P.N." (same reaction in both arms), and ninety-one (22.24 per cent.) negative.

The faintly positive and "P.N." cases were left alone, and only the positive group were treated; forty-two of these, representing the contacts of the first three cases, had been previously Dick-tested and given serum. They were not further immunized. The remaining 246 (61 per cent.) were given four doses of scarlet fever toxin-antitoxin at weekly intervals. Of the ninety who were not Dick-tested twenty-nine boys had had scarlet fever previously (5.8 per cent. of the whole school), while permission was refused in sixty-one cases (12.4 per cent.) for various reasons.

During the process of immunization, which took about four weeks, cases of scarlet fever kept cropping up at intervals of six to nine days, until the tenth case, on March 3rd, when there was an interval of twenty-two days before the remaining five cases, the last one being caught at a general inspection on the morning of the school breaking up. No cases were reported in the holidays.

The incidence of the cases of scarlet fever after active immunization had begun on February 14th—that is, after the fourth case—was as follows. No case occurred among the actively immunized (246). Two cases occurred in boys who had been passively immunized six to seven weeks previously. Two cases occurred in those who had

given such a slight positive reaction that it was considered negligible, and who were therefore not immunized. In the remaining seven cases permission for immunization had not been granted.

Methods of Immunization and Effects

A. *Passive*.—Scarlet fever antitoxin (Burroughs Wellcome) (5 c.cm.) was given to each of the forty-two boys in the morning. These were kept lying down all day, with a special nurse in constant attention, and adrenaline, etc., ready. Apart from inevitable tenderness at the site of injection, one very nervous boy had a slight transient shivering eight hours after injection, and a second had a definite rigor about twelve hours later, which was, however, soon controlled. Ten other cases had serum rashes five to seven days later. In three of these the rashes were very severe. In one case the entire body was covered, the condition lasting on and off for several days. Fortunately the reaction was purely cutaneous, and there were no constitutional symptoms.

B. *Active*.—In order to interfere as little as possible with school life the inoculations (over 1,000 in number) were given at the end of the week. The preparations of Burroughs Wellcome were used, and four successive weekly doses were given as recommended. They were: (1) 0.2 c.cm. of T.A.T.A., (2) 0.4 c.cm. of A., (3) 0.25 c.cm. T.A.T.C., (4) 0.5 c.cm. of C. All boys were given compulsory leave off exercise for twenty-four hours. In addition to two doctors who gave the injections, three nurses were detailed to prepare the arms and sterilize and fill the syringes. Besides a moderate number of sore and somewhat swollen arms, which persisted for several days, six boys had to be admitted feeling poorly and vomiting—two of them after the first dose, four after the third—but they were well in from twenty-four to forty-eight hours.

Fifteen masters were also actively immunized. As a whole they were far more affected than the boys. Five of them complained of feeling very poorly with some fever, especially after the third dose, and two of them refused the fourth dose. They were not, however, sufficiently ill to go off duty. At the end of term 164 boys (61 per cent. of those actively immunized) were re-Dick-tested; of these twelve were still very faintly positive (P – –) (7.3 per cent.).

Clinically the cases of scarlet fever varied in severity. The first and last cases were so mild as to be easily overlooked. The second case was very toxic and delirious on the second day. An injection of 20 c.cm. scarlet fever antitoxin was followed by a dramatic improvement. Three other cases were severe, but the rest were of an ordinary type. Endocarditis and arthritis appeared during convalescence in two cases. The Schultz-Charlton test was disappointing, being positive in only one out of the eight cases tested, and was of no value as a diagnostic procedure. This was not due to the slight or evanescent character of the rashes, but owing to the failure of the serum to blanch the rash.

In addition to these fifteen scarlet fever cases there were twenty-six cases of acute septic tonsillitis, and in three of them scarlet fever was suspected, mainly from the clinical condition of the throat, but though they were under constant observation no rash was seen. One of these, whose tonsillitis was complicated by severe bronchopneumonia and who subsequently peeled on his hands and feet, was slightly Dick-positive, a second, who developed an acute mastoid, was also Dick-positive, while the third, who had the complication of acute otitis, refused the test. So far as can be traced they did not infect any others, but it is significant that these three clinical suspects all produced the same type (5) of haemolytic streptococcus as the majority of the true scarlet fever cases.

Bactericlogy

Throat swabs were taken of a considerable number of cases from those in apparent health, as well as from the sick, and were examined by Dr. Griffith of the Ministry of Health, to whom I am greatly indebted for valuable and expert help. The results in the scarlet fever cases are as follows:

Haemolytic streptococcus	Type 5 (Franklin)	... ...	10 cases
,,	,,	doubtful	1 case
,,	,, Type 4	... ...	1 ,,
,,	,, Type 12	... ...	1 ,,
,,	,, Unidentified	... ...	1 ,,
No ,,	,,	... ...	1 ,,

Among the non-scarlatinal sick cases Type 5 (Franklin) was found in eight patients. Three of these have been referred to above: four of the others were diagnosed as tonsillitis and one as influenza. This type was also found in two healthy Dick-negative boys, but there was no apparent connexion between them and the scarlet fever cases. Haemolytic streptococci of Type 13 (Carter) were found in thirty-seven patients, the majority of whom were cases of acute tonsillitis, and thirteen of whom developed sore throats subsequent to immunization. Taken as a whole this Type 13 group of infections were more seriously ill than the Type 5 group, quite apart from their complications, which included four cases of acute otitis, with one mastoid, four cases of adenitis, and one case of peri-endocarditis. Among the healthy Dick-negatives seventy-seven swabs were examined. Of these fifty-five yielded no haemolytic streptococci, and the remainder were a mixture of types, which included five of Type 13 and the two of Type 5 referred to above.

Discussion and Conclusions

As there was a big epidemic of influenza at the same time, affecting 170 boys, it will be recognized by those familiar with public schools that the attempt at immunization was no light additional work, requiring much internal organization. It might be stated, though it should not be necessary, that no inoculation was given without the parent's consent, and that no pressure was put upon them in the circular letter sent out. No extravagant claims were made in favour of immunization, but emphasis was laid on its more or less experimental nature, and every parent was advised to consult with the home doctor.

It is not unreasonable to conclude that this attempt met with some measure of success. At least, none of those actively immunized developed scarlet fever, whilst eleven others not so immunized did succumb. The early attempt at passive immunity was less successful. It was dropped for two reasons: (1) the recognition that on the appearance of the fourth case the infection had spread too widely to allow all immediate contacts to be found, and (2) the very obvious danger involved in giving serum to large numbers of individuals. In the forty-two early contact cases in which it was given every possible precaution was taken, but the proceeding was not without its anxiety, and I should not be inclined to advocate it on a future occasion.

Other points of interest are: (1) the large proportion of the "Franklin" (Type 5) haemolytic streptococcus in the definite scarlatinal cases (66 per cent.), and its presence in the three suspected clinical cases; (2) the failure of the active immunization to protect from subsequent tonsillitis; (3) the failure of the Schultz-Charlton test; (4) the limited protection afforded by passive immunity; (5) the suggestion that even the slightest positive reaction to the Dick test means susceptibility to scarlet fever; and (6) the readiness with which the majority of parents agreed, without pressure, to this attempt, while the boy himself was, as expected, a cheerful victim.

Since writing this report a case of scarlet fever has recently arisen (June 18th) in a boy who was a Dick-positive contact with the first case of scarlet fever last term, and who had then been passively immunized. In consequence of this case, all the available passively immunized boys of last term, thirty-two in number, have been Dick-tested again, with the result that thirty-one have been found to be positive and only one negative.

I most gratefully acknowledge my thanks to Dr. J. Alison Glover and Dr. Scott for their advice and encouragement, and to the latter for his practical help in starting the immunization; also to Dr. Pickering, without whose constant help in all the inoculations the task would have been impossible; and, lastly, again to Dr. Griffith, whose investigations were so helpful and interesting, and who has allowed me to make use of his work.

CHRONIC AMOEBIASIS AND CHRONIC APPENDICITIS

BY

W. WILKINSON, M.R.C.S., L.R.C.P., D.T.M. AND H.

MEDICAL OFFICER, KENYA MEDICAL SERVICE

A large number of patients seen at the European Hospital, Nairobi, complained of vague abdominal symptoms, and a number of these had had their appendices removed previously. The main symptoms were: flatulent dyspepsia; biliousness; vague abdominal discomfort; occasional acute pains in the right iliac fossa, often of a dragging-down character; general malaise; headaches; backaches; joint pains. The signs usually found were: a peculiar earthy pallor; a dirty, furred tongue; an enlarged and tender liver; a thickened and tender colon.

While working among natives in the Reserves I found that signs of hepatitis predominated over others in cases of amoebic dysentery. As an enlarged liver was common to all these cases in Europeans in Nairobi, a more careful examination of stools was instituted. The system in vogue at the time, whereby a boy carried the specimens to the laboratory each day, was unsatisfactory; so eventually Dr. Tonking of the Medical Research Laboratory came to examine stools at the European Hospital. This resulted in a startling increase in the number of stools found to contain *E. histolytica*, as not only were stools examined fresh, but repeat examinations could be obtained. In five months Tonking found 125 cases positive at the European Hospital alone, while only 366 among both Europeans and natives had been reported from the Medical Research Laboratory during the previous ten years. The patients who had positive stools improved on anti-amoebic treatment, and so it was decided to treat on similar lines those patients complaining of the same symptoms and showing the same signs, but whose stools were negative. They also improved.

Differential Diagnosis

The differentiation between the so-called chronic appendicitis and amoebiasis is not difficult, providing the prevalence of amoebiasis is borne in mind. The following table gives the points of difference.

Chronic Appendicitis	*Chronic Amoebiasis*
Discomfort in the right iliac fossa.	Discomfort in the right iliac fossa.
Epigastric pain.	Epigastric pain.
Heartburn uncommon.	Heartburn very common.
Not relieved by alkalis.	Relieved by alkalis.
Nausea and vomiting.	Nausea common, vomiting uncommon.
Constipation.	Constipation.
Pain localized.	Pain diffuse.
The physical examination may be negative.	The physical examination is never negative.
Pressure in the right iliac fossa may cause discomfort in the epigastrium or at the site of pressure.	The pain is marked over the caecum and hepatic flexure; slight over the sigmoid.
Liver not enlarged.	Liver almost invariably affected in some degree.
Does not run in families.	Tendency to family infection.

The main points of differential diagnosis, therefore, are the presence in chronic amoebiasis of: (1) heartburn; (2) relief by alkalis; (3) enlargement of the liver; (4) the method by which the patient indicates the site of pain—in amoebiasis the whole hand is used and the site of pain varies; (5) the tendency for the disease to run in families. The enlargement of the liver is often only upwards, and percussion of the liver with the patient lying on the right side or sitting up will alone demonstrate the increase in its size. Fine crepitations over the liver between the right axillary line and the right nipple line can often be heard. The thickening of the colon is most marked over the caecum, and it is this painful, thickened caecum which is mistaken for appendicitis.

Amoebae in the stools are often found with difficulty, as not all patients will send their stools for examination daily for six to ten days. Amoebae have a periodicity which varies in different individuals, and only at these periods can amoebae be demonstrated in the stools. Further, amoebae may lie dormant for months, and it is this dormant period which is sometimes erroneously described as a cure of the condition, or used as an argument against the presence of amoebic infection.

Two typical histories illustrating the confusion between the two diseases are as follows:

CASE I

A female, aged 22, was quite well until 1930, when she suffered from indigestion and flatulence. For this her appendix was removed in March, 1930. She felt no better for it. At the end of 1930 one stool was examined and reported as negative. A test meal showed hyperacidity. She was next *x*-rayed for duodenal ulcer, but nothing was found. An operation was suggested, but refused. She then went to England, where further *x*-ray photographs were taken: a diagnosis of acute rheumatism was made. The patient was given steam baths for six months, and massage; still no improvement.

In October, 1931, she returned to Kenya, and was then having two to three attacks of acute pain daily. In April, 1933, her stools were examined and found to be full of *E. histolytica*. Treatment for amoebiasis restored her health.

CASE II

A female, aged 29, had had, in 1923, diarrhoea in Sydney, Australia, followed by constipation, soreness of the abdomen, and periodical attacks of diarrhoea. Her condition gradually got worse, until in February, 1927, she had violent abdominal pains accompanied by vomiting. The attack passed off. During the next two months she had recurrences of abdominal pain, mucus in her stools, and occasional attacks of diarrhoea. A diagnosis of colitis was made. At the end of 1927 the appendix was removed for a return of abdominal pains. She felt better after this, but the colitis continued. She next suffered from urticaria.

In 1930 the patient had pleurisy; the sputum was examined repeatedly for tubercle, but none was ever found. Later she had a maculo-papular rash, for which no diagnosis was given. In August, 1930, there was another attack of pleurisy. *X*-ray investigation and sputum tests were all negative, but a low fever persisted (about 99° F.), accompanied by a slight cough. In 1931 she came to East Africa, and remained well for eight months. At the end of 1931 there was another attack of colitis, associated with rheumatic pains and bad headaches. In 1933, after a further attack of colitis, the stools were examined. The first was negative, but the second and subsequent ones showed *E. histolytica*. The patient's condition improved immediately on the institution of treatment for amoebiasis.

This case also illustrates other features of chronic amoebiasis besides the appendicular type of pain. These are (*a*) the rashes—signs of toxaemia; (*b*) cough and pleurisy, which are usually present in amoebic hepatitis; and (*c*) rheumatic pains, probably toxaemic in origin.

Treatment

The treatment of chronic amoebiasis is not satisfactory. Emetine is the one drug that will control the condition

and cause an abatement of symptoms. Its most pleasing results are in cases in which the liver is most affected. Drugs by mouth, such as carbarsone, stovarsol, and kurchi bark, help to control the disease. Treatment by these drugs and emetine will not, however, effect a cure unless the secondary bowel infection, which is always present in chronic cases, is dealt with. Most cases will produce an agglutinating coliform bacillus, and an autogenous vaccine will materially assist in controlling the infection.

Another reason why this disease is disappointing to treat in East Africa is the frequent reinfections which occur, since amoebiasis is far from uncommon among Africans, and cooks and houseboys may be carriers of the disease. As an example, I quote the figures from Nairobi Prison: in 1933, one case reported; in 1934, fifteen cases; during the first four months of 1935, eighty-eight cases. The clinical diagnosis for the 1935 cases rested primarily on the enlargement of the liver. Several examinations of stools were necessary in most of the cases to confirm the clinical diagnosis: in one instance thirty examinations were carried out. In conclusion, provided the prevalence of amoebiasis is borne in mind, the condition commonly ascribed to chronic appendicitis will be found to have a protozoal origin.

Summary

1. Many cases of so-called appendicitis, and in which the appendix has been removed, were found to respond to anti-amoebic treatment.

2. A differential diagnosis between chronic appendicitis and chronic amoebic dysentery is given.

3. The prevalence of amoebiasis among Europeans and natives is shown.

4. Two typical cases of amoebiasis in which the appendices had been removed are recorded.

Clinical Memoranda

Cavernous Sinus Thrombosis with Recovery

The following case of recovery from cavernous sinus thrombosis, following nasal infection, seems worthy of mention.

Case Record

A youth of 18 years was first seen on April 5th, 1935, complaining of left-sided nasal obstruction and recurrent epistaxis, becoming increasingly worse since an accident in boyhood. On examination his nasal septum was found to be markedly displaced to the left, with a deep concavity on the right side. Investigation of the nasal sinuses and post-nasal space was negative, there being no adenoids. A submucous resection of the nasal septum, which presented no difficulties, was performed under general anaesthesia on April 10th, but it was noted on completion that the right mucoperichondrial flap sagged towards the right, tending to form a pocket.

On the second day following the operation the temperature rose to 102° F., but rapidly subsided twelve hours later, with profuse perspiration. The temperature again rose to 101° on the fourth day, but it gradually subsided, becoming normal by the seventh day. A mild influenzal epidemic was at this time prevalent in the ward, and in the absence of any apparent intranasal infection this was believed to be the cause of the pyrexia. On the eleventh day, however, the patient complained of frontal headache, "like a weight on his eyeballs," especially severe around the left eye. Ocular movements, particularly on looking upwards or downwards, were painful; the temperature was 97.8°. The interior of the nose showed some generalized mucosal oedema, with no particular localization to the septum. Nothing abnormal was discovered in the central nervous system.

On the twelfth day the morning temperature was 102.8°. There was complaint of severe frontal and occipital headache, with photophobia, marked neck rigidity, and a positive Kernig's sign. Slight left external rectus ocular paresis was present: the headache was increased by the slightest movement. On nasal examination a boggy swelling was observed on the right of the nasal septum opposite the middle turbinate, which on incision revealed about a teaspoonful of creamy pus. A septal abscess was drained by a looped strand of silkworm-gut. Culture of pus was sterile.

On the thirteenth day the temperature was 101.4°. Headache was more severe, and the patient was becoming lethargic. There was oedema of both left eyelids, with proptosis, and later in the day the right eye became similarly affected, though to a lesser degree. Gradually increasing left chemosis developed later, with increased neck rigidity and a more marked Kernig's sign. The left external rectus ocular paresis became complete. The abdominal reflexes were diminished on the left side, and there was an indefinite left plantar response. The optic disks showed slight papilloedema, more marked on the left side. Slight bilateral tactile hyperaesthesia was noted in the supra- and infra-orbital regions. Lumbar puncture gave a clear fluid under pressure. The findings on examination of this fluid were as follows: albumin, 60 mg.; globulin, a trace; sugar present; chlorides slightly decreased; cells 11 per c.mm. (lymphocytes). Culture was sterile.

The appearances, therefore, were those of a cavernous sinus thrombosis—probably septic—with meningeal irritation. Mr. Rowbottom kindly saw the case in consultation, and expressed the opinion that, as the condition was not localized, surgical approach was inadvisable. In the belief that the infection was in all probability streptococcal in origin, from the nasal infection, 20 c.cm. of polyvalent antistreptococcal serum was administered intramuscularly on the thirteenth day, and a course of hexamine (10 grains four-hourly) started.

On the fourteenth day the morning temperature was 100.6°, the headache being slightly better and the patient less lethargic. Chemosis and proptosis were still present and the left abdominal reflexes absent. The optic disks were normal. Antistreptococcal serum (20 c.cm.) was given intravenously, followed half an hour later by a lumbar puncture. The cerebro-spinal fluid was now slightly turbid and under pressure, but was again sterile. The silkworm-gut drain was renewed. Considerable improvement was observed by the evening, and the chemosis and proptosis were diminishing; temperature 98.8°.

On the fifteenth day there was much improvement. The headache was better and the left eye was becoming normal. The abdominal reflexes had returned. There was no neck rigidity and no Kernig's sign. The silkworm-gut drain was removed on the sixteenth day. The condition continued to improve.

On the nineteenth day the temperature was 100.4°, and there was slight headache. Intravenous antistreptococcal serum (20 c.cm.) was again administered.

On the twentieth day the septal abscess had re-formed. To facilitate drainage a small window resection of the right wall of the septal abscess was performed under local anaesthesia.

Subsequent progress continued satisfactorily, and on May 24th, 1935, the patient was discharged from hospital.

Summary

1. The late onset of cavernous sinus thrombosis—namely, thirteen days after what appeared in the early stages to be an uncomplicated submucous resection of the nasal septum.

2. A satisfactory response following treatment by incision and drainage of the septal abscess, together with intravenous antistreptococcal (polyvalent) serum therapy and lumbar puncture.

My thanks are due to Mr. F. Holt Diggle for permission to publish the notes of this case.

JOHN GERRIE, M.B., F.R.C.S.Ed.,
Resident House Surgeon, Manchester Ear Hospital.

British Medical Association

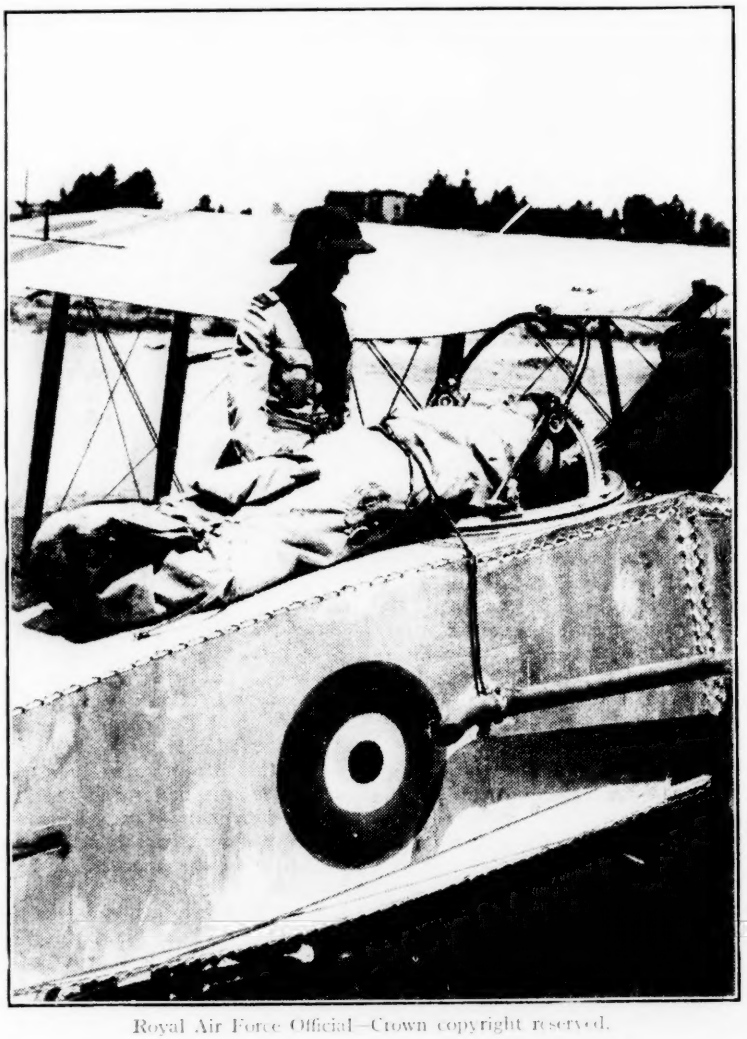
CLINICAL AND SCIENTIFIC PROCEEDINGS

EGYPTIAN BRANCH

Evacuation of Casualties by Aeroplane

A meeting of the Egyptian Branch was organized by Wing-Commander J. B. Thomas, R.A.F.M.S., on March 14th, at the R.A.F. Station, Heliopolis. Methods of evacuating the sick by aeroplane were demonstrated. Several types of aeroplane were shown, and flights were made by members in a large machine fitted with stretchers for nine cot cases. In a lecture on air ambulances, Flight-Lieutenant P. H. Perkins, R.A.F.M.S., traced their evolution from the early experiments of de Mooy at the end of last century, and described the beginning of this work in aeroplanes in 1911 and the evacuations effected in Albania in 1915. He stated that the first occasion on which a British aeroplane specially designed for the purpose was used to carry patients was during the first R.A.F. punitive expedition in Somaliland in 1919–20, when the fuselage of a D.H.9 was modified to accommodate one stretcher. In the French Moroccan campaign in 1921 more than 4,000 casualty cases were evacuated successfully by air. In 1920 an aeroplane ambulance was stationed at Abukir for duty in Iraq, and since 1927 the evacuation of sick by air to Egypt has been a routine procedure, as had been the case from Iraq since 1925, service types of machine being used. The aircraft left Hinaidi in Iraq at dawn, and reached Amman in Transjordania at about 2 p.m. Here in summer, with a "bumpy" atmosphere, patients would be unloaded and accommodated in station sick quarters, the flight being resumed at dawn next morning and Abu-Sueir being reached at 9 a.m., from whence the patients proceeded by train and steamer. The only other practicable alternative was to convey them by land ambulance to Bagdad, thence by a train journey of 350 miles across the desert to Basra, down the torrid Persian Gulf by boat to Bombay—a journey lasting one week—and thence up the Red Sea to Port Said and home. The total time taken would be about a month, the conditions being most trying and uncomfortable. As an illustration of the great convenience of air ambulances, the speaker told the story of an R.A.F. officer who crashed one evening at Khanakin in North Iraq, sustaining a fractured femur, several broken ribs, numerous abrasions, and shock. A telephone message about him was received the same evening, and at dawn next morning he was picked up by a Vickers Victoria machine, enabling him to be safely in bed in the R.A.F. hospital at Hinaidi at 6 a.m. The only other means of travel would have involved a tedious train journey lasting more than sixteen hours. In the R.A.F. no aircraft were specially allocated for ambulance duties; the employment of service types for routine flights or special emergencies had proved satisfactory and economical.

Flight-Lieutenant Perkins then discussed the types of service aircraft which had proved suitable for transport of the sick. The two-seater bombers and Army co-operation aircraft had been constructed to permit conversion so as to carry one stretcher case with an attendant in addition to the pilot. The larger multi-engined troop carriers and flying boats were obviously more suitable for ambulance work than the smaller types, because more than one case could be transported in the same machine, and the attendant could more easily attend to the patient on the journey. The Niel Robertson stretcher, which had been demonstrated to the members, was really an elongated strait-jacket, which was strapped securely to the upper part of the outside of the aeroplane between the cockpit and the tail. It was not intended for the conveyance of dangerously ill patients, or for long distances, but it provided a rapid means of transport for the sick when other means of conveyance were not available.



Royal Air Force Official—Crown copyright reserved.

The speaker then referred to the use of air ambulances in war. He said that in the case of war operations on a large scale there was no practical scheme for the allocation of machines to serve as air ambulances. The number of cases requiring evacuation after a large battle would be so great that it would only be possible to deal with a very small percentage, and all available machines and personnel would be required for combatant duty. Especially in Europe, weather conditions might at times prevent such transportation. On the other hand, in the case of a small force operating from an established base with columns moving up, the accompanying aircraft could be used as aeroplane ambulances. Advanced landing grounds could be established and casualties be evacuated very quickly from them to the base hospital. When the time of the journey exceeded two hours it would be advisable to establish an advanced hospital at which the journey could be broken in order to attend to the patients. Similarly, where a waterway was available, a connecting link with the land planes could be provided by flying boats or seaplanes. Evacuation by air was also extremely valuable when the intervening country was unsafe, or in the case of a siege, provided that the besieged force could hold a suitable landing ground. In operations in the Tropics the evacuation of casualties on land was always difficult. Alternatively, the wounded would have to stay with the fighting force, and hinder its operating.

Reviews

MIDWIFERY

The fifth edition of *Midwifery*,[1] by Ten Teachers, has appeared under the direction of Mr. CLIFFORD WHITE, Sir COMYNS BERKELEY and Dr. FAIRBAIRN being associated with him in the editorship. The book was frankly written for students preparing for their final examination, and the names of the authors would in themselves have guaranteed the success of such a venture which the need for this edition has proved. Although this textbook is now so well known, tribute must again be paid to the remarkable manner in which the work of ten men has assumed such a homogeneous texture, the only evidence of joint authorship being a certain colourlessness and the absence of any attempt to stimulate thought about the many phenomena associated with obstetrics which are at present so little understood.

Since the book is so well known the best service of a review is to draw attention to a few of the points which invite criticism. It comes as a shock that in such a book of more than 700 pages appearing in 1935 less than six pages should be devoted to ante-natal hygiene, and that it is nowhere stated that the blood pressure should be taken on every occasion when the patient attends the ante-natal clinic or that the diastolic blood pressure has some significance. It is not surprising that ante-natal clinics have failed to lower the maternal mortality rate if the subject of ante-natal care is not considered to be worthy of even one-hundredth part of a standard textbook on midwifery. Little mention is made of the technique of preparing a patient either for normal or operative delivery, while the method of normal delivery, illustrated on page 287, is very "messy." Further, no directions are given whereby the student may know for certain whether the placenta has left the uterus. The description of the histological changes associated with the toxaemias of pregnancy is rather schematic and little influenced by recent contributions to the subject. We doubt whether most obstetricians would agree that the rash of pemphigus neonatorum "is chiefly situated on the back, thighs, and buttocks" or that it is "primarily caused by the *Streptococcus pyogenes*." The description of some of the obstetrical operations is very sketchy: in particular we would mention that of the method of terminating pregnancy by means of sea-laminaria tents, while the picture illustrating the incision for Caesarean section on page 665 suggests rather an incision through the fascia lata. It is surprising that traction on the shoulders is advised in the delivery of the after-coming head and that the services of an assistant are advocated for expressing the head from above. It is, moreover, difficult to understand why the authors recommend exposing the vein by a large incision (Fig. 287) for intravenous infusion (a manœuvre to which as many as three illustrations are devoted), and add as an alternative method the use of a sharp needle. It is further not quite clear why the method of directly testing the serum of the patient against the corpuscles of the prospective donor is "empirical," while testing the blood of the patient against sera belonging to Groups 2 and 3 is "scientific."

These few criticisms merely serve to show the high standard the book has attained. In conclusion, we cannot refrain from expressing our admiration for the high ethical standards maintained and advised by the authors when discussing such problems as the indications for terminating pregnancy, advice all the more cogent for the terseness of the language.

[1] *Midwifery*. By Ten Teachers. Under the direction of Clifford White, M.D., B.S., F.R.C.P., F.R.C.S., F.C.O.G. Edited by Sir Comyns Berkeley, J. S. Fairbairn, and Clifford White. Fifth edition. London: E. Arnold and Co. 1935. (Pp. 740; 289 figures, 4 coloured plates. 18s. net.)

ANAESTHESIA

It is quite clear from a reading of his brief monograph, of 220 pages in rather large type, on the *Theory and Practice of Anaesthesia*[2] that Dr. M. D. NOSWORTHY is well abreast of the many recent advances in his specialty, and that he has the necessary literary skill in expounding his views to qualify him for authorship. His task in compressing so much material is no easy one, and his ambitious effort to include rather advanced instruction within the space limits suitable only for very elementary exposition tends to fall between two stools. He has chosen, no doubt in an effort to overcome this handicap, a somewhat unusual scheme of arrangement of his chapters; and here again a question arises whether this order is really a suitable one to present to beginners, though it has perhaps advantages for more experienced anaesthetists.

From the views expressed in this short textbook few anaesthetists will have any wish to dissent, except in a very few and unimportant matters of detail; and Dr. Nosworthy has one merit which not every medical writer possesses—he leaves the reader in no possible doubt as to what his teaching is, by using language which is incapable of misconception and composed in a reasonably good English style.

PSYCHIATRY

The Problem of Mental Disorder[3] is a symposium undertaken by the Committee on Psychiatric Investigations, National Research Council. The members of the committee are Dr. Madison Bently, Sage professor of psychology, Cornell University, and Dr. E. V. Cowdry, Washington University. At the outset attention is drawn to the fact that while the curative arts are constantly discovering new medicaments for preventing and relieving many of the graver ills of the body, no like agency is successfully coping with the mentally disordered in public and private institutions for the insane and in the open life of the community. A vast host of the restrained psychotic and the unrestrained neurotic afflict themselves, distress their families, trouble the local community, disturb business and professional work, and create enormous economic loss. Furthermore, nearly every hospitalized patient means a disturbed and disorganized family. It is obvious to everyone that the committing of a member to a mental hospital much more deeply disturbs the family and the community than does the temporary absence for bodily ills. No attempt is made to minimize the difficulty of the problem here considered and no solutions would be expected, but at the same time the various contributors to this symposium indicate a number of methods of approach which might ultimately be fruitful of results. The first series of articles are concerned with the clinical and psychological methods. Dr. A. Myerson writes on medical psychiatry, Dr. C. Macfie Campbell on clinical psychiatry, Dr. I. S. Welcher on the neurologist's point of view, Dr. Adolph on the psychobiological approach, and Dr. Laurence S. Kubie deals with his subject from the psycho-analytical point of view. All these writers are well-known psychiatrists in this country, and, as might be expected, the various points are admirably set forth.

The greater part of this book is concerned only indirectly with psychiatry. It consists of twenty papers dealing with supporting sciences. It is felt that the psychiatry of our time should acquire the habit of carrying its unsolved problems to the natural sciences, inviting the laboratories of the neurologist, the endocrino-

[2] *The Theory and Practice of Anaesthesia*. By M. D. Nosworthy, M.A., M.D., B.Ch. London: Hutchinson's Scientific Books. 1935. (Pp. 223; 35 figures. 12s. 6d.)

[3] London: McGraw-Hill Publishing Co. Ltd. 1934. (Pp. 388. 24s. net.)

logist, the psychologist, the biochemist, and the general physiologist to throw into commission both old and new methods and principles for effective solutions. Throughout the book the editors give helpful comments on the various contributions included within its pages.

AETIOLOGY OF DENTAL CARIES

If one can shut one's eyes to the inherent improbabilities of the case the theory of the causation of dental caries put forward by Dr. GRAHAM MACPHEE,[4] in what was in origin his M.D. thesis, makes very plausible reading. Briefly, he suggests that the disease is due to an ultramicroscopic virus, and he claims to have shown by direct experiment that the blood serum of caries-immune patients exhibits a precipitin reaction with carious dentinal antigen in greater degree than the serum of caries-susceptible patients; and that this property has no relation to syphilitic infection. Hence he claims the reaction as specific to dental caries.

Difficulty, however, seems to lie in imagining a path by which the filter-passer, or its products, would reach the pulp and so the blood stream. If there are minute channels in the enamel (and it is a very big "if") it is conceivable that the pulp might be reached via the dentinal tubules, but once the dentine is reached in most cases all connexion with the pulp is severed either by the formation of a translucent zone immediately under the decayed area or by secondary (impermeable) dentine laid down by the pulp. Caries, in fact, progresses in a dead area, and is just what the author describes as "mere decay" in a dead tooth. The only other channel is the intestinal canal. Can the exudate from even many carious cavities be conceived of as likely to reach the stomach in sufficient amount to influence the blood stream? It seems unlikely.

The author suggests that the precipitin reaction he describes may account for the calcium barrier which forms the translucent layer of Tomes often found under the carious dentine, and hopes for a day when this vital reaction can be so intensified that living teeth will be caries-proof. At present, unfortunately, neither translucent zone nor secondary dentine is of the slightest avail in arresting caries. That Dr. Macphee's work will receive the careful attention of bacteriologists is certain, but we imagine most will suspend judgement till more evidence is available.

NUTRITION AND POLITICS

It is unfortunate, but perhaps inevitable, that in recent times questions of public health, and especially of nutrition, should have become so mixed up with politics. *Public Ill Health*[5] is a good illustration of this. Although the author states that he has no desire "to use malnutrition as a political stunt," there can be no doubt that his book is highly tendentious. He confesses that it was "conceived in anger"—anger against Sir George Newman's Report on the Public Health for 1933 and the use that has been made of it. He even goes so far as to question the honesty of the report in dealing with unemployment and malnutrition, and his indignation sometimes leads him into incoherence; at least we do not know what to make of this paragraph (p. 220):

> "What, then, are the motives behind the Report on Public Health? Apathy, disbelief, ignorance; a pride in the medical service to make it seem that it is able to continue in steady amelioration, even over the effects of the depression, or political influence, to paint a bright picture? Whatever it is, the Report and what it stands for is an indictment of our objective accuracy, a stigma on professional honesty."

It would be no injustice to the author to say that he is out to paint as black a picture as he can of the state of the public health, and especially of nutritional conditions, in this country. He does this by picking out unfavourable reports by a few medical officers of health as regards conditions in their respective localities, and by emphasizing such well-known facts as that public school boys are taller and heavier than elementary school boys of the same age, and that infant mortality is higher in Wigan than in Oxford. Nor will it surprise doctors to be told that malnutrition leads to an increase in tuberculosis mortality. In trying to establish his case the author is sometimes led into exaggeration. Is it true to say that "measles is a fatal illness in young children *only among the poor*," or that "diarrhoea, vomiting, and bronchitis are all much more common in infants *who are anaemic* than in those who are not"? Or would most paediatrists subscribe to the statement that "infant mortality could be cut down *by half* if only the mothers were supplied with enough blood-building food to build up a sufficient stock of iron in the liver of the newborn baby"? Surely, also, it is inaccurate to say that both the British Medical Association and the Ministry Nutrition Reports were not designed to afford more than the "*barest necessities*" (all italics ours).

No one, least of all a doctor, believes that the public health, especially in the poorer districts, is all that it might be. But nothing is gained by exaggerated gloom, and it is unfair to disparage the work of the Ministry of Health at a time when, as is well known, the public health in general is better than it has ever been, and when more strenuous efforts are being made to improve such essentials of health as housing than have ever been made before. Mr. MCNALLY, however, seems to think that doctors can now do nothing more to improve the health of the people, and that future progress can only be made along the road of improved social and economic conditions. Appropriately enough, the book is bound in red.

[4] *Studies in the Aetiology of Dental Caries.* By G. Graham Macphee, M.A., M.D., Ch.B., L.D.S. London: John Bale, Sons and Danielsson, Ltd. 1935. (Pp. 203. 7s. 6d. net.)

[5] *Public Ill Health.* By C. E. McNally. London: Victor Gollancz Ltd. 1935. (Pp. 224. 5s. net.)

Notes on Books

Sir COMYNS BERKELEY'S ever-popular *Handbook of Midwifery for Obstetric Dressers, Pupil-Midwives, and Midwives* (Cassell, 8s.) now reaches its ninth edition and 53rd thousand. The text has been revised throughout, much new material has been added, and many passages not in accordance with modern practice have been removed. The sections on unavoidable and accidental haemorrhage and ante-natal care have been recast, but owing to exigencies of space the chapter on artificial feeding has been shortened. A number of new illustrations are included.

The forty-sixth annual issue of the *Public and Preparatory Schools Year Book* (London, H. F. W. Deane and Sons, 10s. 6d. net.) has now appeared. It gives under one cover full official information concerning those public secondary schools which are eligible for the Head Masters' Conference and those schools which belong to the Association of Preparatory Schools. The first part is devoted to information about public schools; the second part deals mainly with careers, including a substantial section on the medical profession; and the final part consists chiefly of lists of preparatory schools.

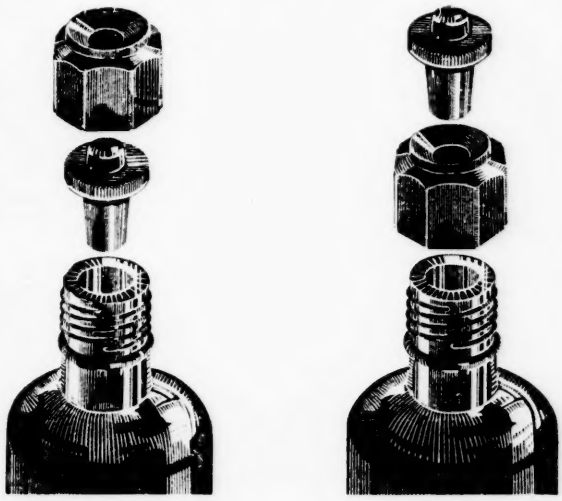
The Association of Maternity and Child Welfare Centres (117, Piccadilly, W.1) has issued a fifteenth edition of its booklet *To Mothers and Fathers: How to Keep Yourselves and Your Children Well and Strong*, which brings the total number of copies up to 900,000. Though this homely little publication does not claim to deal with all the difficulties that may arise in the care and upbringing of a young family, or to replace the expert advice obtainable at maternity and child welfare centres, it can be recommended as a useful guide to mothercraft. The price is 6d., post free.

Preparations and Appliances

THE "COLLOSEAL" BOTTLE STOPPER

The modern bakelite screw caps for bottles, though neater and in some respects better than glass stoppers and corks, make it impossible for manufacturers to mould an effective lip to the bottle. When an aqueous solution is being used it is found that one can only pour cleanly when about four-fifths of the contents of the bottle has already been dispensed. Even then it is not easy to pour the solution accurately, because of the tendency for it to trickle down the neck and sides of the bottle.

The "Colloseal" stopper cap, introduced by British Colloids Ltd., Park Royal, London, N.W.10, and illustrated here, not only overcomes the difficulties outlined above, but incorporates the good points of a stopper and a screw cap without the disadvantages of either. Crookes's "Collosol" solutions are now issued with the stopper in immediate contact with the bottle (see first figure), the former being held tightly in position by the screw cap and the whole affording an



effective seal when the bottle is being carried about. When required for use, however, both cap and stopper are removed (see second figure), the cap being replaced on the bottle first and the stopper afterwards inserted in it. This allows of a sufficiently accurate fit when the bottle is placed on a shelf and not being moved about, and shields the opening from dust, while the specially designed lip now used for pouring enables an even flow of fluid to be secured and makes it possible to pour out the contents drop by drop. For travelling the positions of the stopper and cap are reversed, the cap and stopper now being in the same relative positions as when the bottle is first delivered. The choice of alternative positions enables the best effects to be obtained when travelling and in the dispensary.

APPARATUS FOR CINE-RADIOGRAPHY

We have on more than one occasion—most recently on February 23rd last (p. 380), and more fully on May 5th, 1934 (p. 813)—described the apparatus devised by Dr. J. Russell Reynolds for making a routine cinematographic examination by *x* rays. The manufacture of this apparatus has been entrusted to Watson and Sons (Electro-Medical) Ltd. of Sunic House, Parker Street, W.C.2, who have sent us a copy of a new publication (No. 516) giving details of the equipment. Broadly, the Russell Reynolds system consists of recording by a cinematograph camera the movement which is observed on a fluorescent screen. Successful results have already been made with a variety of subjects, including the cardiovascular system, the lungs and pleurae, and—by the use of an opaque medium—the digestive tract. The cinematograph camera employs a large aperture lens (*f* 0.8), and takes a 16 mm. film, which is coated with an emulsion particularly sensitive to the wave-lengths of the screen ingredients. The screen, too, is of a special character. A circuit breaker is used to energize the *x*-ray tube only when each individual "frame" is in position behind the camera lens. The speed of the camera can be adjusted at from 4 to 30 "frames" per second. It is not necessary to expose any great number of "frames" in order to study a particular motion; in practice a small piece of film is joined into a continuous loop and run through the projector as often as may be required for a study of the cycle of movements. The apparatus produced by Messrs. Watson includes a specially designed high-tension generator, a control table, a "metalix" 10 kW tube, and a screening stand. The equipment is available for normal radiography, screening, and teleradiography, as well as for cinematograph recording. The cinematograph film, which can easily be developed in the *x*-ray dark room, may be shown in a small projector.

A TONSIL DISSECTOR

Dr. E. GWYNNE-EVANS, M.B., B.S.Lond. (London, W.5), writes:

There are so many dissectors designed for the enucleation of tonsils, each with their own particular advantages, that I hesitate to publish another. Yet it also has its advantages, and has demonstrated its usefulness in routine hospital practice during the last year.

The smooth, tapered end is orthodox, being slightly curved, with semi-sharp edges, and is used solely for the purpose of incising the reflected mucous membrane of the tonsil, freeing the anterior pillar, the upper pole, and the posterior pillar; in turn, preserving the pillars intact and displaying the capsule. The reverse end is flattened and also slighty curved, terminating in a straight row of very fine serrations, the sides being smooth and semi-sharp. The serrated edge rests on, and is kept close to, the tonsil, and is employed to separate the tonsillar bed gently away from the tonsil. Trauma and subsequent after-pain are reduced to a minimum, as it is impossible to injure the bed of the tonsil. Each movement that is made accomplishes its object, especially avoiding as far as possible repeated attempts to overcome the tough fibrous tissue in adults who have had several attacks of inflammation or quinsies. Also, incidentally, the length of anaesthesia is shortened. Haemorrhage rapidly ceases, in most cases without ligaturing, and a smooth tonsillar bed remains. The dissection of tonsils in children is rapid and easy, with freedom from post-operative bleeding and shock. Messrs. Mayer and Phelps have kindly made this dissector for me.

MANDELIC ACID

The fact that this substance is a powerful urinary antiseptic was only discovered a few months ago, but two British firms—British Drug Houses Ltd. and Boots Pure Drug Co., Ltd.—have already put on the market preparations of this substance suitable for therapeutic use. The introduction of mandelic acid as a urinary antiseptic was the result of a series of researches based on the fact that urinary sepsis was checked by administration of a ketogenic diet. The active principle was found to be β-hydroxybutyric acid, but this substance is destroyed in the gut and therefore cannot be given by mouth. Rosenheim[1] investigated the action of a series of organic acids and found that mandelic acid had an antiseptic action equal to that of β-hydroxybutyric acid, and when given by mouth was excreted unchanged in the urine. Mandelic acid has been shown by clinical experiments to act as a powerful urinary antiseptic, and, in particular, to be effective in cases of chronic cystitis due to *B. coli*. The oral administration of mandelic acid is of course a far less troublesome therapeutic measure than is the administration of a ketogenic diet.

British Drug Houses have issued a useful pamphlet explaining the use of mandelic acid. The therapeutic dose is 12 grams daily, and it is given together with sodium bicarbonate to prevent gastric irritation. At the same time it is necessary to make the urine acid, which is most easily done by the administration of ammonium chloride. British Drug Houses are issuing an outfit containing the necessary drugs, together with indicator dyes for measuring the reaction of the urine.

[1] Rosenheim, M. L.: *Lancet*, 1935, i, 1032.

DIMENSIONS OF HOSPITAL WARDS

PROPOSALS FOR L.C.C. HOSPITALS

The space standards laid down in the past for hospital wards have been mainly standards of cubic capacity, dictated by considerations of air pollution. Great importance has been attached to loftiness; wards have been built up to 16 feet in height, though the window space, which is the really important matter, has often been quite inadequate. The London County Council, through its Hospitals and Medical Service Committee, has lately been considering this problem in so far as it relates to the building of future hospitals or ward-blocks. In adapting existing institutions, of course, the dimensions are already determined by the shell. The standards which have been formulated concern only the usual type of ward in which the beds are placed at right angles to the side walls. Wards in which beds are parallel to the side walls have been constructed, but it is felt that there is not yet sufficient experience of their use available to warrant the laying down of standards.

Acute Adult Wards

In dealing with acute adult wards the first necessity is for adequate working space on either side of the bed. In addition to routine nursing attention, many forms of treatment and examination have to be carried out from the bedside, requiring the screening around the bed of a sufficient space to accommodate the doctor, his assistant, and a dressing trolley. It is believed that the desirable wall space per bed is 8 ft., which allows 5 ft. of floor space between adjoining beds, and assures the patient a proper standard of comfort and of separation from his neighbours. The width of the ward must allow for the beds projecting on either side and for a centre space. A length of 7 ft. is normally occupied by each bed, but modern treatment of fractures may require the use of apparatus projecting considerably over the bed foot. The centre space must provide room for necessary articles of furniture and equipment, some of which are in constant use. In the new blocks at St. James's and Lewisham Hospitals the wards are 26 ft. wide, and it is believed that this is the minimum width compatible with efficiency. As for the height of wards, an increase above 12 ft. has been found to add little or nothing to the improvement of the air, satisfactory ventilation depending upon the provision and proper use of window space. A height of 11 ft. is to be adopted for wards up to about 50 ft. in length, and of 12 ft. for longer wards, but it is thought improbable that the unbroken ward up to 100 ft. in length will ever again be constructed. These standards give a floor space of 104 sq. ft. and 1,144 cu. ft. per patient.

Wards for Chronic Cases

In chronic wards the need for working space is less than in wards occupied by cases of acute illness, and considerations with regard to disturbance and distress of neighbouring patients do not weigh so strongly. Here it is proposed that the wall space per patient shall be 7 ft. or 8 ft. in wards where there is any considerable proportion of offensive cases. The traffic in chronic wards is also less than in acute, but it is thought undesirable to have varying standards of width, and therefore width, and height also, are to be the same as for acute wards.

Children's Wards

In children's wards the consideration of infectious disease comes in, and although distance will not prevent cross-infection it will undoubtedly help to limit it. It is felt that if larger cot-wards remain the wall space should be 7 ft., and that width and height should be the same as in the adult ward. In single-bed wards the length in line of the bed must not be less than 11 ft. and the width 10 ft. to allow of efficient working. A great deal of the accommodation in L.C.C. hospitals does not conform to these standards, but the adequate lateral distance between patients can be secured by reducing the number of beds in each ward. The general position as regards accommodation makes this impossible at the present time, but various proposals are under consideration the object of which is to increase the number of available beds and effect the necessary improvement in due course.

THE BEER DRINKING HABIT

DOCTORS' MANIFESTO

A manifesto entitled "The Brewers' Attack upon Youth" has been signed by a thousand medical men, among them being many eminent members of the profession. It reads as follows:

> "We the undersigned view with serious apprehension the projected campaign which would seek to enlist the young men of the country who do not know the taste of beer into the beer drinking habit. As a result of several causes and tendencies there has been a vast improvement in national sobriety in recent years. There has also been a corresponding diminution in the disease, poverty, crime and inefficiency which are traceable to drink. The beverage use of alcohol is not really necessary to the highest exercise of individual and social life. We therefore deprecate the initiation of an effort to promote the beer drinking habit among the young, and we would regard the success of such a campaign as a step backwards and as detrimental to the best interests of individual and national welfare."

The declaration by Sir Edgar Sanders, director of the Brewers' Society, is printed on the inside of the cover:

> "We want new Customers. We want to get the Beer Drinking Habit instilled into Thousands, almost Millions, of Young Men who do not at present Know the Taste of Beer."

In 1934 there was an increase in the demand for trained almoners; fifty appointments were made, of which twenty-six were in respect of newly created posts. The annual report for that year of the Institute of Hospital Almoners comments on this evidence of the steady growth of this service due to increasing demands by hospital administrative boards, medical staffs, and medical schools. For those contemplating social work in connexion with mental hospitals, the mental health course at the London School of Economics is commended. The council of the institute appeals for more entrants in view of the increasing demand, and points out that it offers an up-to-date system of training in the practical adaptation of the accepted principles of social work to the special circumstances of hospitals. Certificates are granted to students who have passed the university examinations and obtained satisfactory reports on their practical work. Selection and advisory committees are now functioning in connexion with the universities of London, Leeds, Liverpool, Birmingham, Newcastle, Edinburgh, and Glasgow; London students are required to take at least two months of their hospital training in an institution in the provinces. The offices of the institute are in Tavistock House (North), Tavistock Square, W.C.1, and the secretary will supply more detailed information on application.

British Medical Journal

SATURDAY, SEPTEMBER 7th, 1935

NUTRITION AND PUBLIC HEALTH

"The remarkable advance of the science of nutrition during recent years demands a new orientation of public health activity."

Such is the theme, ably sustained, of Drs. E. Burnet and W. A. Aykroyd in their report to the Health Organization of the League of Nations[1]; it is a theme on which many have discoursed within recent years, but none with more show of reason than these authors. Some ten years ago McCarrison, as a result of experience in India, affirmed that the newer knowledge of nutrition was the greatest advance in medical science since the days of Lister, and stated: "When physicians, medical officers of health, and the lay public learn to apply the principles which this newer knowledge has to impart, then will it do for medicine what asepsis has done for surgery." Even in the days before this newer knowledge had been acquired there were not wanting those who emphasized the important relations existing between food and a healthy population. Sir Henry Thompson, writing in the relatively dark ages of fifty years ago, insisted that "the influence of food was not only itself cardinal in rank, but by priority of action was the source of various forces, injurious or the reverse, as the case might be." The report of the B.M.A. Committee on Nutrition has done much to focus attention on this important subject; and the publication to-day of the booklet, *Family Meals and Catering* (see p. 461) is an important step towards the practical application of this report in the kitchen. The urgency of prudent planning in this matter is emphasized in a broadsheet issued by P.E.P. (Political and Economic Planning)[2]. Pronouncements such as these are elaborations, based on recently acquired knowledge, of the dictum of Hippocrates, who, when speaking of the effects which different kinds of "bread" had upon a man, said: "Whoever pays no attention to these things, or paying attention does not comprehend them, how can he understand the diseases that befall a man?"

There can be no doubt but that this newer knowledge of nutrition has placed in the hands of our profession a potent weapon against disease—a potent instrument in the promotion of physical efficiency and well-being. It behoves us, therefore, to become proficient in this knowledge, to apply it in the daily course of our work, and to spread it by every means in our power. A special responsibility attaches to our medical schools in this respect. "At present, medical students, during the early years of their course, are given a few lectures and demonstrations dealing with the physiology of nutrition, and perhaps carry out a little laboratory work in this field; the subject is presented as a chapter of physiology, and not as an integral part of preventive medicine." The authors of the League of Nations report, from which we here quote, are "far from suggesting that yet another specialty should be added to the already congested curriculum." But surely a subject which is "an integral part of preventive medicine" must in the future be given a place in the medical curriculum commensurate with its importance. In its teaching we must be content with no half-measures. The student must have the opportunity to see with his own eyes the havoc that is wrought in the various organs and tissues of animals subjected to faulty nutrition of various kinds and degrees. Apart from the so-called "deficiency diseases" he must be made to perceive that the greatest single factor in the causation of ill-health is improperly constituted food, and that the greatest single factor in the promotion of good health is properly constituted food. The League of Nations report furnishes examples of the futility of providing better houses for those who can only afford to live in them by curtailment of their food.

But nutrition, as the report reminds us, "is an economic, agricultural, industrial, and commercial problem, as well as a problem of physiology." In connexion with these aspects of it the authors discuss questions of food supply: production, distribution, and preservation of food; points of contact between nutrition and economy; nutrition and poverty. The reader will find much that is of great interest in the section dealing with these matters. The necessity for the teaching of nutrition in schools and colleges, of its inclusion in courses of domestic science; the great scope offered to public health nutrition workers for the employment of "nutritionists" and "dietitians" in institutions; the possibilities of "collective feeding"; the efforts now being made in many countries, including our own, to improve the physique of the people by the provision of better food—all these matters, and others, are ably discussed in this report, which should be carefully studied by all who are interested in the well-being of the people. Many of these social, economic, agricultural, industrial, and commercial aspects of nutrition are outside the range of activity of the practitioner of medicine. They are the concern of those responsible for the wise spending of public funds in ways that will bring the greatest good to the greatest numbers. In some of these regards there is much opportunity for the exercise of a greater wisdom, a greater courage, and a more prudent use of both land and labour. The newer knowledge of nutrition is a spur to prick the side of our own intent as well as that of those to whom the nation has entrusted its affairs. A passage from Sir Henry Thompson, written in 1891, is very much to the point to-day:

"There are few subjects which deserve more careful study by man than the selection and preparation of his food. Our forefathers in their wisdom have provided, by

[1] "Nutrition and Public Health." *League of Nations, Quarterly Bulletin of the Health Organization*, vol. iv, No. 2, June, 1935. London: Allen and Unwin, Ltd. (2s. 6d.)
[2] No. 44, February 12th, 1935.

ample and generously endowed organizations, for the dissemination of moral precepts in relation to human conduct, and for the constant supply of sustenance to meet the cravings of religious emotions common to all sorts and conditions of men. In these provisions no student of human nature can fail to recognize the spirit of wisdom and a lofty purpose. But it is not a sign of ancestral wisdom that so little thought has been bestowed in the teaching of what one should eat and drink ; or on the relations necessarily existing not only between food and a healthy population, but between food and a virtuous life."

OESTRIN AND THE PROSTATE

The characteristic effects of oestrin and oestrogenic substances on the vaginal epithelium led several workers to investigate the influence, if any, on epithelia in other situations and in particular on that in the prostate and accessory sexual glands of the male. Burrows, in a recent communication,[1] examines the problem in detail. Previous workers had established that prolonged treatment with oestrin leads in the mouse to the appearance of a stratified, squamous, keratinizing epithelium in the prostate, the alveoli of which are normally lined by a single layer of cells arranged in an orderly manner. The prostate of mice is frequently, but wrongly, said to include the coagulating gland which was described in detail by Walker in 1910. This gland has the peculiar function of secreting a substance which coagulates the contents of the seminal vesicles, and this secretion produces the vaginal plug found in the females of certain animals (rat, mouse, guinea-pig) after copulation. Burrows found that the most striking effect of oestrin in the male mouse in producing the keratinizing stratified epithelium is in the coagulating gland. The oestrogenic compounds tested were ketohydroxyoestrin, ketomethoxyoestrin, equilin, trihydroxyoestrin, and equilenin, which were dissolved in benzene or alcohol and applied twice a week to the non-epilated skin of the interscapular region or injected subcutaneously in oily solution. The results of such treatment extended over one hundred or more days are very striking. The alveoli of the coagulating glands, normally lined by a single layer of cuboidal or columnar epithelium, become converted into sacs lined by a squamous, stratified epithelium, the superficial layers of which undergo keratinization. The changes resemble in a noteworthy fashion those which are found to occur in the vagina during the oestrous cycle of the mouse. In the prostatic alveoli proper the orderly distribution of the lining epithelium gradually disappears, the alveoli become lined by disarranged cells in several layers, and there is a general increase of connective tissue in the gland. The condition of the gland resembles in no small degree the benign hyperplasia found in the human prostate. At a later stage the disordered epithelium of the alveoli and the ducts becomes replaced by a stratified epithelium consisting of larger and more regularly shaped cells. Unlike the sequence of events observed in the coagulating glands, the metaplastic epithelium of the prostate has not been found to undergo keratinization ; but, as pointed out by Burrows, this may be a difference of degree only. Similar changes are found in the periurethral glands, the prostatic urethra, and the columnar epithelium of the lower ends of the ejaculatory ducts. These changes appear to be reversible, so that discontinuance of the oestrin treatment is followed by a loss of the keratin and stratified epithelium, the normal structure of the alveoli and ducts being re-established. The parts which were last to take on the metaplastic form are the first to resume the normal structure after cessation of the oestrin treatment. The possibility that these efforts are explicable on embryological grounds comes from the fact that the Müllerian ducts probably give rise not only to the utriculus masculinus, but also to that part of the urethral wall from which the coagulating glands and portions of the prostate arise. The possibility that oestrin acts selectively on parts derived from the Müllerian ducts is suggested by the observation of Burrows that in several oestrin-treated mice there was a greatly increased size of the structure taken by him to be the utriculus masculinus: in one case an organ was found attached to the epididymis which consisted of tubules lined with squamous, stratified epithelium and filled with keratinized matter, and which might reasonably be regarded as arising from the cranial end of Müller's duct.

Have these interesting findings any application in the problem of the benign enlargement of the prostate in elderly men? Anatomically there is justification for the belief that the hypertrophy of the human prostate mainly involves those parts which are embryologically related to the Müllerian duct. Further, the histological evidence reveals no essential difference between the human enlarged prostates and those of oestrin-treated mice. In the mouse treated for a long time with oestrin the symptom-complex of prostatic enlargement is very similar to that in man. The fact that oestrogenic compounds have been demonstrated in small amounts in the blood, testes, and urine of men leads to the hypothesis that the long-continued action of these small amounts may be, and probably is, enough to produce the frequently observed prostatic enlargement. The firm establishment of such a hypothesis is clearly difficult, but that oestrin can produce prostatic enlargement in the human subject is indicated by the fact that the prostate of the human male infant is considerably enlarged at birth, and that it later diminishes in size as the infant is removed from the influence of the large amounts of maternal oestrin which are produced during pregnancy. Stratification of the epithelia of the utriculus masculinus, prostate periurethral glands, and urethra in the male foetus has long been known to occur during gestation, and its later disappearance is no doubt due to the removal of the infant from the influence of maternal oestrin. The

[1] *Amer. Journ. of Cancer*, March, 1935

question of the prevention or cure of enlarged prostate would seem, therefore, to involve that of finding the origin of the oestrogenic compounds in the male and then a method for their inactivation or neutralization. The reversible nature of the changes as seen in mice and in the human infant is particularly suggestive, and gives encouragement in the matter of effective permanent cure.

NUTRITION IN THE HOME

The British Medical Association is publishing to-day a booklet entitled *Family Meals and Catering*[1]—in effect a small cookery book based on Diet No. 16 of the Report of the Committee on Nutrition in 1933.[2] At the time of the publication of that report it was suggested that the committee should have provided menus and recipes for the foodstuffs listed. In an annotation in the *Journal* of December 16th, 1933 (p. 1132), we said, in reply to this criticism: "It is for schools of cookery and domestic science to interpret the findings of the Nutrition Committee." The hint was taken by teachers of domestic science at the Summer School of the Board of Education held in London in 1934, and the outcome is the booklet that is now published. Menus for three weeks have been worked out for the principal meals of the day, and for all the dishes recommended full recipes are given. Slight alterations in Diet 16—for man, wife, and three children—have been made so as to ensure variety from week to week without increasing the cost or altering the nutritional value of the diet as a whole. The meals have all been cooked by students of the National Training College of Domestic Science in London, and the coloured plates reproduced in the booklet show how much variety the practical cook has been able to achieve with what at first sight would seem to be an unappetizing list of foodstuffs. *Family Meals and Catering* is not a technical publication for the medical profession; it is meant primarily for the housewife to whom economy in feeding her family is a first consideration; it should also be of equal value to the teachers of domestic science in schools and to the taught. Even those who are not driven to make both ends meet should find these weekly menus a useful basis for domestic catering. It is believed that the wide use of this booklet would lead to a considerable improvement in the nutrition of the people of this country. To advocate that the average man should have so many calories a day and such and such a proportion of fats, proteins, carbohydrates, vitamins, and minerals is one thing; to show the housewife how this may be accomplished in the kitchen is another, and could only have been done, as in fact it has been done, by the co-operation of the expert on nutrition and the cook. The lively reception by all sections of the community of the original report of the committee was a healthy sign of the interest people are taking in what must be the basis of good health—good food; and the B.M.A. may justifiably take credit to itself for supporting this experiment in practical dietetics.

[1] London: B.M.A. House, Tavistock Square, W.C.1. (6d. per single copy; 3s. per dozen to schools and institutions.)
[2] *British Medical Journal Supplement*, November 25th, 1933, p. 12.

THE R.A.M.C. AS A CAREER

For several years before 1931 there was a serious shortage of candidates for the Royal Army Medical Corps. The factors leading to diminished recruitment were inadequacy of pay and pension and restriction of professional opportunity. A Departmental Committee, under the chairmanship of Sir Warren Fisher, investigated the matter, and it recommended that the R.A.M.C. should be reorganized on lines designed at the same time to improve the professional opportunity which a career in the Services offered and to add materially to its economic advantages. It was proposed (*a*) to increase the length of career, (*b*) to lower the ages at which promotion to successive ranks takes place, and (*c*) to increase the proportion of officers promoted to the higher ranks. The recommendations of the Warren Fisher Committee were accepted by the Government. All entrants to the R.A.M.C. will receive short-service commissions. At the end of five years an officer will have the choice of retiring with a gratuity of £1,000 or applying for a permanent commission. As a result of substantial up-grading, an officer in the permanent Service will spend a larger part of his career in the higher ranks than formerly, for if he joins at 25 and is granted a permanent commission, it is guaranteed that he will be a captain at 26 and a major at 35. Promotion to lieutenant-colonel and colonel will be by selection, and it is estimated that it will occur, on the average, after seventeen and twenty-five years respectively; this is to be achieved by a careful control of the permanent entry. Further, the career of the average officer will normally extend to the age of 57. If the officer joins the Service at the age of 25 and is accepted for permanent service, his rates of pay, exclusive of allowances (which form a considerable addition to pay rates), will be as follows:

Age	Rate of Pay
25	£362 — Lieutenant.
26	447 — Captain.
35	621 — Major.
42	949 — Lieutenant-colonel.
45	1,031 — Lieutenant-colonel.
50	1,156 — Colonel.

Improved pension rates follow as a result of the substantial up-grading. The Army offers an excellent opportunity for clinical work and for scientific research. A permanent commissioned officer who shows particular aptitude in any one branch of the profession will be given an opportunity of qualifying as a specialist, and, if successful, will be afterwards employed in that branch for the greater part of his career. For the young medical man who wishes to spend a short time in the Army before settling down to practice or taking up an appointment in civil life, a short-service commission in the R.A.M.C. provides an interesting and instructive experience with good pay and a generous gratuity at the end. During his service he will gain experience—both professional and other—which should be of much benefit to him in his after-career. Many of the improvements which have been made in the conditions of service of officers of the Royal Army Medical Corps are the direct outcome of the action of the British Medical Association, and at the recent Representative Meeting of the Association it was unanimously agreed that the opportunities for a career which are now afforded by the R.A.M.C. merit the serious consideration of the newly qualified practitioner.

RESPONSIBILITY UNDER SUPERVISION

In the *Guy's Hospital Gazette* for August 17th there is a short article contributed under the *nom-de-plume* of "Stanley" and entitled "Back to Apprenticeship?" which is worthy of attention because it helps to keep alive a discussion which occurred at the recent meeting of the Representative Body of the Association on a subject which is likely to increase in importance during the next few years. Every serious contribution to a solution of the problem of how to give the medical student, during his undergraduate period by preference, real opportunity both of realizing the responsibilities which he must practically undertake immediately upon qualification, and of some actual exercise of such responsibility while he is still under the supervision of a fully qualified and experienced superior, should be read with interest and respect. The particular points to which the article by "Stanley" draws attention are the importance, the necessity even, of making this provision, and the eminent qualifications which a good general practitioner has for undertaking the supervision and instruction required. The writer pays a deserved tribute to the qualities of "general practitioners by and large as a class," and compares the position of the general practitioner in the field of disease to that of a general officer commanding an army in the field. "He has specialist officers on his staff for employment as his advisers when required. But he is the man who knows when a river wants bridging or when artillery action is called for, and he leaves the details in the hands of his specialist officers." The conclusion is that, since the position of the general practitioner is of such paramount importance, it would be fatal to medical education if definite preparation for, and introduction to, this position were not to be, or to become, an essential part of undergraduate training. The Medical Education Committee of the British Medical Association made in its report some valuable suggestions to this end. In the observations which the Representative Body authorized that committee to make to the General Medical Council next November this matter is again emphasized, and it is to be hoped that that Council will seriously consider these suggestions, and that, even if the immediate difficulties of their adoption are not overcome, discussion will still continue as to the best method of carrying them ultimately into effect.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The annual meeting of the British Association for the Advancement of Science, which began at Norwich on September 4th, and will continue until the 11th, includes in its programme fewer subjects than usual of direct medical interest. In his presidential address on the opening day Professor W. W. Watts, after a comprehensive review of the form, drift, and rhythm of the continents, concluded with a reference to the effects of groups of biological changes on each other, describing the evolution of the brain of man as the greatest marvel of all. Cerebral anatomy and physiology loom large in the subsequent discussions. Thus, the sections of physiology and psychology held a joint discussion on hearing and aids to hearing on September 5th, and the following day's programme contains papers on colour vision and a presidential address in the section of psychology on personality and age. Next week there will be an important discussion on the pituitary body in the section of physiology on Monday, reviewing the latest information as regards its origin, structure, function, and dystrophies. On the same day there will be a joint discussion by the sections of psychology and educational science on the place of psychology in the training and work of teachers. The remainder of the programme includes a joint discussion on September 10th by the sections of psychology and engineering on road accidents, and on the same day a discussion on physical education in the section of educational science will focus attention on its relations to health and unemployment. Apart from questions of the brain and its functions, there will be a discussion in the section of chemistry on the chemotherapy of malaria on Monday, and on Tuesday a joint discussion of the sections of physiology and economic science and statistics on the economic aspects of diet. Friday is being celebrated as the centenary of the landing of Darwin on the Galapagos Islands and the birth of the hypothesis of the "origin of species."

FATE OF LIPIODOL IN THE LUNGS

It is axiomatic that a substance introduced into the human body for purposes of investigation should not have a harmful effect on the individual examined, either immediately or remotely. A complete knowledge of the fate of the substance after its entrance into the organism therefore seems essential. Relatively large quantities of lipiodol have in recent years been injected into the lungs. Rare sequels such as iodism have been reported, elimination of the iodine by the kidneys has been investigated, and the disappearance or persistence of the lipiodol in the lungs, as demonstrated by serial *x*-ray photographs, often described. An important contribution to the matter from a different aspect is now published by F. Besançon, J. Delarue, and M. Valet-Bellot.[1] Within three months they were able to examine post mortem the lungs of three patients whose death occurred two days, twelve days, and six years respectively after an intratracheal injection of lipiodol. The organs were investigated histologically both by the usual paraffin and haematoxylin technique, and by staining for fat with Sudan III and scharlach. The authors point out the need for caution in interpreting the histological appearances. Thus it is important, especially when death has occurred from asphyxia, not to mistake fatty post-mortem changes for the fat derived from the lipiodol. Moreover, pre-existing exudative or interstitial changes must not be confused with lesions which may be caused by the lipiodol. They discuss at length how these sources of error were avoided. Their findings, illustrated by clear diagrams of the microscopical preparations, may be summarized as follows. The lipiodol enters the alveoli at once, and is found lying free in their interior or lining the walls. Very soon—for after forty-eight hours the process is in full swing—cellular elements (macrophages) originating from the alveoli begin to absorb the oil. This phagocytosis is, and remains, entirely interparietal. Cells do not free themselves

[1] *Ann. d'Anat. Pathol. et d'Anat. Norm. Méd.-Chir.*, 1935, xii, 229.

from the wall to engulf the lipiodol in the alveolar cavity. When found in the latter, it is because they have become detached already full of fat. This phagocytosis is slight, and progresses slowly, for after twelve days there is still much lipiodol free in the alveoli. This confirms what is generally assumed—that most of the lipiodol is rejected by coughing. The subsequent fate of the fat-laden cells appears to be similar to that of "dust-cells" described in anthracosis. After forty-eight hours, and especially after twelve days, they are found in the interlobular septa and in the peribronchial and perivascular spaces. After twelve days they are seen in the lymphatic channels near the hilum. Throughout the investigation no evidence of an inflammatory reaction due to the lipiodol or of encystment was detected. The third case enables the authors to offer an explanation for the occasional persistence of a lipiodol shadow for years, as described by Sergent, Durand, and Poumeau-Delille under the term "mailles de fillets." When extensive interstitial changes exist in the lung parenchyma, the migration of the fat-laden macrophages is arrested and they remain in the perilobular connective tissue spaces or in the lymphatics. At this depth the normal process of oxidation, leading to decomposition of the fat with elimination of iodine, cannot take place owing to absence of oxygen—hence the persistence of the shadow. They emphasize that even after an interval of years an acute inflammatory process arising in the neighbourhood of such a focus may lead to liberation of the fat.

FOETAL CEPHALOMETRY BY X RAYS

The work of Thoms in America and of Roberts, Rowden, and others in this country, has placed *x*-ray pelvimetry on an exact basis, but their methods demand high-powered and expensive plant. Accurate measurements of the pelvis are, however, of relatively little value unless measurements of the foetal skull can also be obtained. L. N. Reece[1] has described a simple method of *x*-ray cephalometry which does not require an expensive apparatus, and suggests that it should be used as a routine in ante-natal work. The principle of the method is that, the foetal head being an ovoid, the diameter of its greatest circular section must be represented in any shadow cast by it. It is stated that the great majority of babies are born with a bi-parietal diameter of 3.75 inches and that this diameter increases by almost exactly one-tenth of an inch during each of the last eight weeks of pregnancy, so that it is possible to make an accurate estimate of foetal maturity by means of *x* rays. Seeing that cephalometry can be carried out with almost any *x*-ray apparatus the author suggests a modification in the method of *x*-ray pelvimetry which permits tolerably accurate measurements of the pelvis to be made during the early months of pregnancy with almost any available apparatus. It may be stated here that in the subsequent discussion both Dr. Roberts and Dr. Rowden objected to inaccurate *x*-ray pelvimetry with inferior apparatus on the grounds that it would bring the method into disrepute. If it be assumed not only that Reece's method is accurate, but that it can be carried out by any radiologist in the country, it does no more than provide a useful method of checking foetal maturity, for it is admitted that the bi-parietal diameter of the foetus at term is remarkably constant. The further value of the method in indicating when it is desirable to induce labour for contracted pelvis, if indeed this operation is desirable, can only have a "scientific" justification if accurate *x*-ray pelvimetry, necessitating an expensive installation, is also performed. In the present state of public anxiety concerning maternal mortality it is conceivable that the considerable expenditure, probably exceeding £1,000,000 per annum, might be sanctioned, but it is extremely doubtful whether it would lead to a reduction in either the maternal mortality or stillbirth rates. Midwifery is and must remain an art. It requires years of training before a man can know which head will and which head will not pass through any given pelvis, and there are always imponderable factors concerned. If the State is to spend an additional million pounds every year on midwifery, it is at least debatable whether it would not be better employed in training personnel than in making measurements which can never be a final guide but might lead to an increase in operative intervention and a decrease in the striving to acquire a difficult art.

[1] *Proc. Roy. Soc. Med.*, 1935, p. 489.

MEDICAL INSURANCE AGENCY

A meeting of the committee of management of the Medical Insurance Agency Limited (by Guarantee) was held at British Medical Association House on May 30th, when the report of the Agency's work during the year 1934 and the corresponding balance sheet were adopted. The chairman stated that increasing activity and progress had been noted during the year under review, and that larger numbers of the profession were now consulting the Agency on all forms and manners of assurances and insurances. In life assurance the Agency has, during 1934, been instrumental in advising upon and placing insurances exceeding in capital value £400,000. Satisfactory advances have also been made in the pension contracts, while in motor car insurance progress has been maintained and new proposals were more than sufficient to maintain the losses on renewals. From July, 1934, to the end of April, 1935, the Agency dealt with 762 claims, of which 610 were accidental damage. Steady increases are also reported in accident, sickness, household, and fire insurances. The amount of surplus available for distribution to the charities for 1934 is £3,560. Out of this sum the Agency contributes £1,260 to the Royal Medical Benevolent Fund and fifty guineas to the Royal Home for Incurables. The unallotted amount is therefore £2,247. The distribution of grants for the year is set out below:

		£ s. d.
Royal Medical Benevolent Fund		1,510 0 0
Ladies' Guild of the R.M.B.F.		500 0 0
Epsom College—		
For general purposes	£315	
Dawson Williams Memorial Fund	£600	
		915 0 0
Girls' Education Subcommittee		300 0 0
Royal Home for Incurables, Putney		52 10 0
		£3,277 10 0

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the nervous system met with in general practice.

CEREBRAL HAEMORRHAGE AND THROMBOSIS

BY

SIR E. FARQUHAR BUZZARD, Bt., K.C.V.O., M.D., F.R.C.P.

Cerebral haemorrhage and cerebral thrombosis are vascular accidents due, in the majority of cases, to disease of arteries in the brain or, more rarely, to arterial embolism resulting from a distant pathological process.

From the clinical point of view it is often impossible to distinguish between the haemorrhagic and thrombotic accident, nor is this discrimination a matter of great importance so far as treatment is concerned. It is probably true to say that most patients who survive an attack of apoplexy have suffered from cerebral thrombosis, and that fatal apoplexy is generally haemorrhagic in origin.

Disease of the arterial wall, except it be due to syphilis, is not amenable to treatment, and when a doctor is faced with non-syphilitic apoplexy therapeutic measures must be directed towards the preservation of circulation in those parts of the brain which have not undergone immediate and permament destruction. And it is often impossible in the first few days following a " stroke " to determine how much the impairment of cerebral function is due to tissue destruction and how much to a temporary disturbance of circulation in healthy areas, the result of secondary oedema and increased intracranial pressure. For this reason the doctor may often commence treatment with a measure of greater hope, in regard to recovery, than the initial condition of his patient seems to justify.

The Apoplectic Stage

From the first moment when a disturbance of the cerebral circulation is suggested absolute rest in bed with skilled nursing is essential. Whether the patient is conscious or unconscious, all physical and mental efforts must be avoided and every endeavour made by his attendants to conserve the strength of his heart's action and an unimpeded flow of blood to his brain. The patient's head and shoulders should be slightly raised, and, if unconsciousness and stertor are present, turned to one side so that the tongue does not fall back and so interfere with respiration.

Deep cyanosis is an indication for venesection, and the removal of 10 to 20 ounces of blood is often a useful stimulant to the circulation. A slow pulse and rhythmic respiration in an unconscious patient should be met by free drainage of cerebro-spinal fluid from the lumbar region of the spine. The presence of any considerable quantity of blood in the fluid is, generally speaking, of grave significance.

Active purgation should be avoided, and the bowels are better relieved by means of daily enemata. The question of feeding in the early stages must be decided by consideration of the patient's general condition. The conscious but feeble patient with low arterial tension may be given liquid food with small quantities of alcohol or other diffusible stimulant at regular intervals from the beginning, but the comatose patient with bounding pulse may well be starved for twenty-four to forty-eight hours before light nourishment is commenced. In the presence of difficulties with swallowing, the food must be administered through a nasal tube. A careful watch must be kept on the bladder, and, in the event of retention, urine drawn off by means of a catheter, with scrupulous attention to cleanliness and to keeping the patient's perineum dry and healthy.

Physical or mental restlessness is best controlled by a quarter of a grain of morphine hypodermically or by half an ounce of paraldehyde mixed with olive oil and introduced into the rectum.

The length of time during which the patient should be kept at complete rest in bed will naturally vary in accordance with his age, with the severity of the apoplexy, and particularly with the condition of his heart. In any case no exertion should be allowed until the cardio-vascular system is working reasonably well.

If the vascular accident is known or suspected to be the result of syphilitic arteritis, and this is usually in patients who have not reached the age of atheroma, anti-syphilitic treatment should be started without delay. Mercury is invaluable, and its influence may be brought to bear very quickly by the immediate intramuscular injection of a grain of the metal in some form of cream. Such injections may be repeated at weekly intervals, or daily inunctions of a drachm of blue mercurial ointment or of the oleate of mercury may be substituted. The site of such inunctions should be varied from day to day, and hairless parts of the skin chosen for the purpose. Potassium iodide in increasing doses, from 10 to 30 grains three times daily, may be given by the mouth at the same time, and this treatment may be followed later by courses of arsenic or bismuth.

Hemiplegia

In the majority of cases of cerebral haemorrhage and thrombosis the resulting disability takes the form of some degree of hemiplegia, and, as has already been pointed out, it is impossible in the early stages to determine how far the symptoms are due to destruction of nerve tracts or how far they are the consequence of oedema and compression. This ignorance justifies the adoption of a hopeful attitude, and necessitates the employment of every measure likely to facilitate recovery even in the most unpromising cases.

Success in dealing with hemiplegia depends largely on an intelligent anticipation of the difficulties which are usually met with and on enlisting the patient's active co-operation in his treatment.

Armed with the knowledge that the patient's paralysed limbs will tend, if left to themselves, to assume certain fixed positions, it should be the object of the doctor and nurse in attendance to counteract this tendency from the beginning. Even when coma is present the nurse should see that the paralysed arm and leg, particularly the former, are never allowed to lie for long periods in one position. The upper arm should be kept away from the chest wall by means of a pillow in the axilla, the forearm should be frequently supinated and placed in the extended position, and the wrist and fingers may from time to time be placed for a few hours in some form of splint to oppose

spontaneous flexion. Passive movements should be carried out at least two or three times daily at every joint, and all muscles subjected to gentle massage.

With return of consciousness and the ability to appreciate his disabilities, the patient should be educated to understand that he is expected to play the chief part in his own progress towards recovery. It should be explained to him that his arm and leg are not the seats of his disease, that every return of voluntary movement will require his own initiation, and that the manipulations of the nurse and masseur aim only at keeping the limbs in good condition. It is equally important that the masseur should appreciate his own limitations, and that he should not pretend to possess any healing powers independent of the patient's co-operation.

The patient will quite naturally tend to practise and perfect those movements which come first and most easily to him, and he should be constantly reminded not to neglect those which he finds more difficult and even those which he is unable to carry out. It is a good plan to explain to him the various movements natural to each joint and to ask him to spend a certain amount of time daily attempting every movement in turn, even in the absence of any successful response to his efforts. He should do the same thing while the masseur is carrying out passive movements, and the latter should engage his attention to that end.

Only by persevering in such methods will the patient overcome such obstacles in his progress as the tendency to spasticity, contractures, and deformities, and so attain the maximal amount of control over his voluntary movements. Equally important is the avoidance of bad habits when the patient begins to get about. If left to himself the patient will walk with an extended leg, which he circumducts and swings in order to prevent the toes catching the ground. No instrumental assistance is necessary, but he should be taught to advance his leg by flexion at the hip and knee. In sitting, too, he should avoid the tendency to adduction of the leg and inversion of the foot and toes.

Electricity has no place in the treatment of hemiplegia, and its application, even if not actually harmful, is a waste of time and money. It tends to make the patient believe that recovery is going to take place as the result of external applications, and so to minimize the value of his own all-important efforts.

Such are the principles governing the treatment of hemiplegic patients, and the medical attendant, having grasped them, can apply them to the solution of individual problems as they arise.

OXIDATION-REDUCTION POTENTIAL

A REVIEW OF THE POSITION TO-DAY

The subject of oxidation-reduction potential ("redox" potential) has for some years claimed considerable attention from biologists, and Dr. L. F. Hewitt has done a valuable service by reviewing the present position of the work on this subject in the third edition of his monograph *Oxidation-Reduction Potentials in Bacteriology and Biochemistry*.[1]

Thirty years ago both chemists and biologists were familiar, in a general way, with the implications of the terms "acidity" and "alkalinity." These terms had, however, a qualitative rather than a quantitative significance, and (especially perhaps for the biologist) progress along certain lines was inhibited by vagueness and lack of definition when phenomena affected by changes in reaction were studied. The development and mathematical treatment of the theory of hydrogen-ion concentration, together with the recognition of "buffering" effects, has cleared up and defined the situation, and greatly accelerated progress. In like manner the terms "oxidation" and "reduction," which used to possess a qualitative significance only, have, by the development on quantitative and mathematical lines of the theory of oxidation-reduction potential, received a new significance and acquired a precision which will undoubtedly contribute much to the study of biological processes.

Definition of Terms

The term "oxidation" suggests a chemical reaction in which oxygen plays a part, but long ago the chemist had broadened its significance and had used it to cover changes in which oxygen played no part. He spoke, for instance, of ferrous chloride being "oxidized" to ferric chloride. In terms of the theory of oxidation-reduction potential the term "oxidation" signifies the loss, by an atom, of an electron, and the consequent acquisition of a positive charge; the term "reduction" signifies the gain of an electron, and the consequent acquisition of a negative charge. $Fe^{\cdot\cdot}$ minus one electron becomes $Fe^{\cdot\cdot\cdot}$; H minus one electron becomes $H^{\cdot}$ (it will be observed that in these terms hydrogen atoms are *oxidized* to hydrogen ions). The electron can of course only leave its atom (we are not now dealing with the ionization of gases by high-tension discharges, where the electrons are actually freed) if another atom is ready to receive it—in other words, ready to be "reduced." Thus, oxidation cannot take place without simultaneous reduction of another portion of the system.

A simple example is afforded by a solution containing a mixture of ferrous and ferric chlorides. In such a mixture the proportion of the two salts does not change. If, however, electrical connexion is made between it and a concentration cell of some description, current will flow; if the direction of the current is such that electrons are conducted from the ferrous chloride–ferric chloride solution to another part of the system, ferrous chloride is oxidized; if in the reverse direction, ferric chloride is reduced. In the first instance, the electrons are "accepted" by some substance in the other "half cell," which is thereby reduced; in the second the electrons which reduce the ferric salt have come from some other substance, which has, therefore, been oxidized. The direction in which the current flows is, of course, determined by the electromotive force developed by the two half cells respectively. Its absolute value in the case of either can be measured by substituting a calomel half cell for the other, and employing the potentiometric method. The half cell with the higher E.M.F. gives off electrons at the higher pressure; it is the most negative, and its reduction potential is the greater. The magnitude of this potential depends: (1) on the nature of the substance; and (2) on the relative concentrations of the oxidized and reduced forms—not at all on their absolute amount. Reduction potential is thus a measure purely of intensity, not of capacity. If two or more oxidation-reduction systems are present together in the same milieu (for example, inside a cell) the system with the higher reducing capacity ought to reduce that of the lower reducing capacity; thus whether the chemical events inside a cell are chiefly oxidations, or chiefly reductions, should, in theory, be predictable from a knowledge of the systems present. To give a familiar example,

[1] L.C.C. *Oxidation-Reduction Potentials in Bacteriology and Biochemistry*. By L. F. Hewitt, Ph.D., D.Sc. Third edition. London: P. S. King and Son Ltd. (2s.)

methylene-blue has a lower reduction potential than, and is therefore reduced by, many biological systems—for example, the lactic-acid-(dehydrogenase)-pyruvic-acid system. We therefore use it to observe their activity. Since it has a higher reduction potential than molecular oxygen the experiments must be carried out anaerobically, or the dye is re-oxidized as fast as it is reduced, and functions merely as a hydrogen carrier. It will be appreciated that dyes of known oxidation potential (like methylene-blue) can readily be used to determine the oxidation-reduction potential of certain systems.

Application to Living Systems

At the present time it is difficult to apply the theoretical knowledge which we possess to living systems, for various reasons. First, it is clear that the oxidation-reduction potential must be affected by the *p*H—and this is often difficult to determine. Secondly, it is impracticable to insert an electrode and an agar bridge into a living cell; many dyes which have been used are toxic to cells, and also are apt to distort the potential, because their "capacity" effect is large and liable to mask the effect of the systems really responsible for the potential in life.

A good deal of progress has been made and interesting information gained by studying the changes in potential in a culture medium in which living bacteria are multiplying. The significance of these observations evidently turns largely on the answer to the question whether the reactions which are quantitatively and qualitatively most important to the bacteria take place in the inaccessible recesses of the cell interior or at its surface. At present, interesting and helpful results may be expected whenever a system can be isolated and studied alone: the data obtained from living tissues or cell suspensions are as yet very difficult to interpret.

THE HEALTH OF LONDON SCHOOL CHILDREN

THE L.C.C. REPORT

The Shakespearean description of the schoolboy is out of date. Perhaps the reason why he whined and crept like a snail unwillingly to school was because learning was a bother to him on account of eye or ear defects, or because adenoids or rheumatism interfered with his scholarly zest. For generations after Shakespeare the second age of man was, for many, a time of unhappiness, ill nourishment, and deformity. To-day the children of the schools are more nearly an ideal population, healthy, wholesome, full of the joy of living. More pleasant school buildings and better adapted methods of teaching have something to do with this change, but the most powerful factor for good has been the school medical service.

Treatment Centres

By way of introduction to the report for 1934 of the School Medical Officer for the County of London,[1] Sir Frederick Menzies sketches the improvement which has taken place during the present reign. It was in 1910 that the first school treatment centre was opened in London; there are now seventy-four such centres. The first dental centre was opened in the same year, and now there is provision for the dental treatment of 150,000 children annually. In 1910 there were sixty-eight school nurses; the number has been multiplied fivefold. Ringworm of the scalp, formerly one of the greatest scourges of children, is now rarely found; there were only 265 new cases last year, compared with over 6,000 in 1911. The proportion of children with discharging ears has come down from nearly 4 per cent. to under 1 per cent.

The Problem of Nutrition

In 1912 the proportion of children of subnormal nutrition in London was 12.8 per cent.; by 1934 it had been reduced to 4.6 per cent., the lowest figure ever attained for London; and that does not tell the whole story, because nearly all the cases now returned as subnormal are very slightly so, whereas in years gone by much grave malnutrition was included. The number of children found definitely malnourished out of 138,000 examined was only twenty-one. This number, 138,000, represents the elementary school children examined last year in the three statutory age groups—namely, entrants, children aged 7, and children aged 11 years. In addition, 63,000 "leavers" were examined, and the total number of inspections, reinspections, and special inspections was above half a million. The seventh and eighth years appear to be the critical age for boys from the point of view of nutritional state. Girls of this age are more sedate, serene, and sedentary than their brothers, who engage in feverish activities which overtax their immature strength.

The London County Council has established five experimental nutritional centres for 1935–6; it is intended to carry out a more extended inquiry into the causes of failure to reach a satisfactory nutritional state in the case of certain children. Investigation will be made of family budgets and dietaries, and advice will be given to parents. The school "leavers" who were examined showed in nutrition and also in cleanliness an improvement on the younger groups, but in dental condition they were slightly inferior.

Left-handedness

A chapter in the report is devoted to left-handedness, a definite, though slight, handicap in certain commercial and industrial occupations. It is considered desirable in the early stages of teaching to encourage children who have a tendency to be left-handed to write with the right hand, but in cases in which left-handedness is either natural or well established there will be some danger in exercising pressure in the matter. Certainly no attempt should be made to obtain right-handedness by punishment or ridicule. Pressure may result in emotional disturbance, or even nerve symptoms, including stammering, and on any sign of such disturbance all attempts to encourage a left-handed child to be dextrous should be abandoned.

Health of Teachers

During the five years 1930–4 the number of teachers who died while in the Council's service was 284, and the number of those who retired prematurely on medical grounds was 411 (this out of a staff of just under 18,000). Breakdowns due to pulmonary tuberculosis were fewer than in the previous quinquennium, those due to rheumatic conditions increased, and, while the total number of teachers invalided out of the service on account of nervous or mental disorders did not differ greatly in the two quinquennia, there is now a greater tendency for the mild or functional type to preponderate over the graver organic lesions. While women break down more frequently than men, the deaths among men relatively are more numerous. A woman teacher is more than twice as likely to be obliged to retire on health grounds than a man (2.5 : 1), but is less likely to die in service (1 : 1.5).

[1] L.C.C. Annual Report for 1934. Vol. iii. Part II, Public Health (Report of the School Medical Officer). London: P. S. King and Son, Ltd. 1935. (1s. 6d.)

Retirement of Mr. Bishop Harman

A warm tribute is paid to Mr. Bishop Harman, whose retirement as consultant ophthalmological surgeon is recorded with much regret. Mr. Harman joined the service in 1903, and was associated with the earlier developments of the schools for the blind and the partially sighted. His reports on the causes of blindness and seriously defective vision were for a long time the most authoritative statistical data available. He is best known, however, for his work in connexion with classes for the partially sighted ; and the initiation and development of the system of special education for partially sighted children in London is due in large measure to his enterprise and foresight.

NEW IDEAS IN HOSPITALS

A VISIT TO THE CONTINENT

A delegation from the Middlesex County Council recently made a tour of newly built hospitals in France, Germany, and Austria with a view to getting ideas for the planning of an extension to the North Middlesex. Their report, embellished by fifty photographs, is an interesting description of some recent Continental constructions.[1]

A Vertical Hospital in Paris

The first hospital visited was the new Beaujon, in the north-west of Paris, the only vertical hospital on a really large scale in Europe, and the first of a series of large new hospitals to be built in various quarters of the French capital by the Administration-General of Public Assistance. The Beaujon is nearly 200 feet high, and has thirteen stories. It is an impressive structure, with its projecting wings and tiers of balconies, and in its wards, each with from six to fourteen beds, and its 263 single rooms, it accommodates one thousand patients. Each floor is a self-contained unit, and each of the lower six floors, which are given up to surgical and obstetrical and gynaecological cases, has a theatre block at its extremity. Each floor has also an *x*-ray equipment, but for screening only, screening being used largely in French hospitals. The wall space per bed is ten feet, which is two feet more than the ideal proposed for the L.C.C. hospitals. The out-patient department is quite separate from the main hospital, and includes a casualty ward, where all fresh cases arriving after the late afternoon are admitted for the night, to await clearance next morning, so as to avoid disturbance in the main wards during the night and emergency pressure upon the night staff.

Visit to Vienna

Vienna was visited in order to inspect two new constructions. One of these was the Wilhelminspital, a State institution, five stories high and covering a large area. It is partly used for pulmonary and surgical tuberculosis. The visitors noted a special artificial pneumothorax room with an interesting board for recording the date and capacity of refills. The other institution was the renowned tuberculosis pavilion at Lainz (City of Vienna Hospital)—the " Austrian Brompton "—with 320 beds, well spaced out in large wards and verandas. A novel bed board was noted here. This was made of metal, with a panel for the loose letters of the patient's name, and another with little hinged tabs to indicate diet and any recent haemorrhage or fever—red for haemorrhage and blue for fever—so that any nurse could see at a glance whether a patient should be allowed out of bed. The tabs are locked in position so that no one can tamper with them. In this same pavilion the emptying and cleansing of sputum mugs, one of the most unpleasant duties of a nurse, has been reduced to a fine art. The whole operation is done mechanically, even to the lifting of the mugs on to the trolley by means of tongs.

Some Hospitals in Germany

The Marienkrankenhaus, at Ludwigshafen, near Mannheim, was built five years ago, again on the vertical plan, but of only nine stories in the centre and five in the wings. It accommodates 400 patients, and the nursing is undertaken by 100 nuns. There are a number of private wards, with bathrooms attached, the price of which is nine marks (about 15s.) a day, exclusive of medical attendance. The physiotherapy department, with long-period immersion baths, in which the patients adjust the temperature to suit their comfort, is a prominent feature of the establishment.

The Hospital for Women and Children at Nuremburg is four years old, and was built at a cost of £450,000 to accommodate 200 women and 110 children. The babies of women confined in the hospital are kept in nurseries at the end of the corridors and are only brought into the wards for feeding. The two lowest floors are for obstetrical cases, the second floor for operative gynaecological cases, and the third for what the Germans call conservative gynaecology—that is, for non-operative cases. The hospital deals with 800 obstetrical cases a year, each case remaining in hospital as a rule for ten days, and 2,000 gynaecological cases. The infants' section has wards on three floors, the largest ward having four cots, and each ward is provided with a balcony so ingeniously built as not to cut off sun and air from the ward below.

At Dresden the places of interest were the two self-contained units of the Johannstadt General Hospital—the children's hospital and the nurses' training school. The Kinderklinik accommodates 180 children and has open-air wards with " wheelbarrow " beds. The lecture rooms are used not only for nurses, but for social workers generally, and the visitors mention that they saw sixty district nurses here listening to a lecture on National Socialist ideas. In a photograph reproduced of the entrance hall of the clinic a picture of Herr Hitler is conspicuous. The septic block of the Fräuleinklinik is situated in another part of Dresden. Here the visitors saw many cases of pelvic inflammation being treated by ultra-short-wave diathermy ; the staff was most enthusiastic about the results. At Leipzig the Orthopaedic Clinic, built in 1930, was visited. Half this building is given up to theatres, workshops, gymnasiums, and departments for hydrotherapy and physiotherapy.

The final visit was to the Martin Luther Hospital, Berlin, built four years ago, with 420 beds. All seriously ill patients here have single-bedded rooms, which makes for quieter and happier wards and avoids the distress of public death. At this hospital and also at Mannheim the visitors noted that the food was much more appetizing and attractively served than anything seen in English hospitals, and compared favourably with the provision of a good restaurant. Mention is made of the great kindness and courtesy shown by all the hospital staffs during the tour ; they conveyed the feeling that the visits were an honour and a pleasure to themselves.

[1] Published by the County Council of Middlesex at the Guildhall, Westminster.

AIR RAID PRECAUTIONS

A GOVERNMENT MEMORANDUM

A Memorandum (No. 1) on the treatment of casualties and the decontamination of personnel has been issued by the newly established Air Raid Precautions Department of the Home Office. It outlines the type of organization to be set up by local authorities to provide first-aid and hospital treatment for air raid casualties, and to afford means of decontamination for all affected by poison gas. The Ministry of Health has already issued the general outline of a scheme for the Metropolitan Police District, which can be used as the basis of a scheme for any densely populated urban area; the requirements for rural areas are on much simpler lines. The present memorandum surveys the main problems, outlines the organization considered appropriate for large county boroughs, comments on the types of arrangements suitable for county areas in England and Wales, and indicates the application of the same general principles to local government conditions in Scotland. After a general plan has been drawn up for the organization of each district, the training of the necessary personnel has to be considered, and also the question of what equipment is required other than that already available. In this latter connexion it is pointed out that the Government will make arrangements for the supply of respirators, protective clothing, and bleach powder for the services covered by this memorandum; the approximate quantities which can be supplied to each district will be indicated later.

Treatment of Casualties

Four classes of patients likely to require attention are distinguished: (1) persons suffering from physical injuries due to bomb explosions or fire, but not affected or contaminated by gas; (2) persons suffering from such physical injuries who are in addition either affected or contaminated by gas; (3) persons who require treatment because they have inhaled gas, or whose skin has been contaminated by it; and (4) persons who require no medical treatment, but whose clothing has been contaminated by gas. It is recommended that all these classes should be dealt with by a single organization, which would combine the normal type of ambulance and hospital service for the treatment of accidents with special arrangements for dealing with gas contamination.

In urban areas depots for sending first-aid parties and for providing first-aid decontamination treatment for ambulant cases should be available no further than one mile from the place where the casualty occurs; many persons will be able to be dealt with in their own homes. Each area which is large enough and has a community of interest should have a complete organization, but arrangements should always be made for mutual co-operation with its neighbours, since it is impossible to foresee the number of bombs which might be dropped at any spot. The scheme should therefore contemplate the provision of mobile first-aid parties for neighbouring areas and the placing of hospital beds at the disposal of casualties from these areas. The immediate expenditure to be met by local authorities should be confined to matters of organization and administration, and the scheme should be drawn up on the supposition that there will ultimately be an equitable apportionment of cost between national and local funds.

Scheme for a County Borough

The memorandum outlines an organization which is based on the scheme prepared by the Ministry of Health for the Metropolitan Police District, and which contemplates the inclusion of adjacent county districts in the county borough scheme. It is suggested that the unit should include the following parts.

FIRST-AID PARTIES AND CENTRES

Mobile first-aid parties should be available to be dispatched to any place where air raid casualties have occurred. There should be provided first-aid centres and decontamination centres (preferably combined) to which persons with minor injuries or suffering slightly from gas or with contaminated clothing can proceed independently for treatment and any necessary change of clothing. The recruitment of special staffs will be required; in this connexion the memorandum notes especially the need for making use of general medical practitioners and of such societies as the St. John Ambulance Brigade and the British Red Cross Society. The personnel of the first-aid parties and of the centres should be trained in advance, and preliminary measures should be decided upon for the supplementing of hospital nursing staffs. It is announced that arrangements will be made later regarding the training of instructors in anti-gas precautions. An appendix describes the proposed equipment of first-aid parties. For a densely populated area it is suggested that there should be twelve such parties available (six on duty and six in reserve) for every 100,000 of the population, in addition to parties held in central reserve. More may be desirable in some towns, and fewer in parts of the country less exposed to hostile attack. The function of the first-aid parties will differ from that of the staffs at the centres, but the training for both will be similar, and the two should be regarded as having interchangeable duties. The arrangements for recruitment and control should be closely allied, and it is suggested that it would be well for the local organizations of the St. John Ambulance Brigade and the British Red Cross Society to be used for both purposes. It would be convenient for depots common to both to be installed, capable of housing all necessary equipment, with telephonic communication, and near to police stations and fire stations. In an urban area such depots should not be more than two miles apart, and should be under the control of officers responsible for arranging the dispositions of these parties.

First-aid and decontamination centres should be combined under one roof, or be very close together, and no ambulant casualty should have to walk more than one mile to the nearest. Separate centres, whether in the same building or different buildings, will be required for the two sexes. The suggested lay-out and equipment of these centres is described in Appendix D of the *Air Raid Precautions Handbook*, No. 2. An adequate supply of hot water and shower baths must be available, and suitable accommodation will often be found in public baths and washhouses or in schools. Supplies of clothing must be provided for issue to gas-contaminated patients.

HOSPITALS

Two sets of hospitals are denoted: (1) casualty clearing hospitals, to which more serious cases could be taken by ambulance, and, if not fit for immediate transfer to base hospitals, be detained and treated; and (2) base hospitals, situated, so far as possible, outside areas of special danger, and available for cases evacuated from the casualty clearing hospital as soon as they are fit to be moved. The latter hospitals, which should be in the area where casualties are likely to occur, should normally be the local hospitals, and should have operating theatres and beds available. On the threat of an air attack, beds in these hospitals should be freed by the removal to outlying hospitals (existing or improvised) of all patients who could be transferred with safety.

After a raid as many beds as possible should be kept free for further casualties; it is assumed that these hospitals would, in any case, be less suitable for chronic medical and surgical cases owing to their being situated in threatened parts of the town. The hospitals must be provided with decontamination sections. For the purpose of base hospitals it may be necessary to select places which are not normally used as hospitals. Places in rural areas should be selected so far as is possible, but they must not be so far from the borough as to create a serious transport problem. It may be necessary to have recourse to mental hospitals, public assistance institutions, and possibly infectious diseases hospitals and residential schools. In their selection it will often be necessary to co-operate with other local authorities. In some cases, even in a county borough, it may be desirable

to use a hospital both as a casualty clearing station for its own area and as a base hospital for another area. Since the creation of these base hospitals may involve adaptation of premises and the provision of beds and other hospital equipment and stores not already available in the building selected, complete plans for adapting and equipping will have to be drawn up in advance.

OTHER SERVICES

Ambulances will be required: (1) for evacuating ordinary cases from hospitals selected to be casualty clearing hospitals; (2) for transporting casualties picked up by first-aid parties to casualty clearing hospitals; (3) for transferring serious cases from first-aid centres to casualty clearing or base hospitals; and (4) for transferring cases from casualty clearing hospitals to base hospitals. In addition to the already existing ambulances of the services of the Order of St. John and the British Red Cross Society, and those of local authorities, it will often be necessary to adapt other vehicles for conveying stretcher cases and to train additional drivers and attendants specially. Regret is expressed in the memorandum at the absence at the present time of any standardized form of stretcher for use in ambulances. It is strongly recommended, therefore, that whenever new ambulances are ordered they should be so fitted as to be capable of taking any of the kinds of stretchers in general use.

An organization will be required for the decontamination of clothing, with equipment and trained personnel. A central records section for casualties will have to be created, and clerical staffs will be provided to enable records to be kept of casualties and their treatment at every first-aid and decontamination centre as well as at hospitals, including the arrangements for the custody of the clothing and valuables of the patients.

Rural and Intermediate Areas

In a sparsely populated rural district the risk of casualties is much less, and it is advised that for the provision of first aid reliance should be placed on the local medical practitioners and district nurses, and on the local organizations of the Order of St. John and the British Red Cross Society, possibly supplemented by mobile first-aid parties from neighbouring towns. Similarly, as regards hospital treatment, it should not be necessary to reserve beds in any hospital for casualties, since they could be conveyed more conveniently in improvised ambulances to the nearest available hospital. In addition to the training of the local personnel in the special treatment of gas casualties, all that is required is the creation of a widespread organization covering a large area of country which would enable first-aid parties to be sent where they were needed, and would ensure that hospital accommodation would be available if necessary. Intermediate conditions as regards town and country areas would be covered by suitably modified schemes, and county councils would therefore have to plan out large areas for the organization of complete schemes. In Scotland, while the schemes outlined would apply generally, certain modifications would be necessary to suit special circumstances. The St. Andrews Ambulance Association and the Scottish branch of the British Red Cross Society would function actively.

P. H. A. Favret (*Thèse de Paris*, 1935, No. 354) states that the increase in the incidence of undulant fever in France is shown by the fact that whereas in 1925 only seventeen departments were affected, in 1934 this number had risen to fifty-nine. Although epizootic abortion in cattle has long been known to be frequent in the districts of the Aisne, the Ardennes, and the Marne, only sporadic cases of it in human beings had been known to occur until recently. The abortive forms of the disease, however, are frequent, and often lead to errors in diagnosis on the part of practitioners who have not encountered a case. Favret has collected eight cases of undulant fever in persons aged from 22 to 47 whose infection was undoubtedly of bovine origin. All were living in rural districts and in direct and repeated contact with the cattle.

England and Wales

Medical Society of London

The first half of the session 1935-6 of the Medical Society of London will open on Monday, October 21st, with the annual general meeting at 8 p.m., followed by Professor George Gask's presidential address on "Changing Surgery" at 8.30. On Monday, October 28th, at 8.30 p.m., a discussion on electrical injuries will be introduced by Dr. Macdonald Critchley and Dr. John Aydon. A clinical evening will be held on Monday, November 11th, at 8 p.m. A discussion on the use and abuse of insulin will be opened by Dr. R. D. Lawrence and Dr. George Graham on November 25th, at 8.30 p.m. On Monday, December 9th, at the same hour, Dr. Reginald Miller and Dr. William Moodie will introduce a discussion on the care and treatment of difficult children. The Lettsomian Lectures, on the differential diagnosis of diseases of the colon (dysentery and colitis) and their complications, with special reference to treatment, will be delivered by Dr. Philip H. Manson-Bahr on February 17th and 26th and March 2nd, 1936, at 9 p.m. Sir James Walton will deliver the annual oration on Monday, May 11th, 1936.

British Post-Graduate Medical School

The British Post-Graduate Medical School has been established to provide for the further and more advanced tuition in medicine to qualified medical men. It is entirely reserved for those holding university degrees or registrable qualifications. Students can be admitted at any time or for any period to the ordinary teaching and hospital practice of the School. The clinical work is provided in the Hammersmith General Hospital (388 beds, in course of extension to 534). The work is of a suitable standard for students preparing for higher degrees in medicine and surgery, but no special classes are held for these qualifications. Arrangements can be made for students taking diplomas in clinical pathology, radiology, bacteriology, and the Ph.D.Lond. Refresher courses for general practitioners are held from time to time, the next courses beginning on September 16th and November 18th. Each course lasts two weeks. A course of lectures on "The Place of the Laboratory in Clinical Work" will be held twice yearly. The fees, tuition and hospital practice, are: one month, £5 5s.; three months, £10 10s.; six months, £15 15s.; practitioners' course, £5 5s. Further particulars may be had from the Dean, British Post-Graduate Medical School, Ducane Road, London, W.12. Tube stations: Wood Lane (Central London Railway), Ladbroke Grove (Metropolitan Railway); No. 7 bus passes the School.

Cruelty to Children

It is announced in the report of the fifty-first year of work of the National Society for the Prevention of Cruelty to Children that the number of cases investigated (44,886) was the highest since the war, and that two-thirds of them were reported by the general public. Cases of violence rose for the seventh year in succession, and at 4,814 were by far the highest total in the society's history. One-sixth of the cases were classified as unpremeditated assault, and five-sixths as continuous ill-treatment, girls suffering nearly as much as boys. One-eighth of the children were babies under the age of 2 years. Illegitimate children came unduly high in the lists. The report calls attention to the following findings. It is easier to bring to a reasonable state of mind parents who have been ill-treating their children than those who are grossly neglecting them. Fathers are much more often prone to cruelty than are mothers, and in more than one-quarter of these cases the men had been out of work for a long period. In the overwhelming number of cases the initial trouble was quarrelling between the parents. Feeble-minded persons rarely ill-treat children, and feeble-minded children are rarely ill-treated by their parents. Bad housing and overcrowding were not obvious causes of brutality: the home conditions in one-quarter of the cases were quite good, in more than one-half they were satis-

factory, and in only one-seventh were the houses describable as slums or country hovels. One-sixth of the persons concerned were under the influence of drink. Many cases were the outcome of an entire lack of knowledge of the art of bringing up children; terrorization figured unduly in the cases of violence dealt with during the year. There was a considerable reduction in the number of cases of parents residing with their children in one room, and overcrowding is obviously being reduced. There was a slight decrease in medical cases owing to the falling off in dental, nose, and throat diseases. Most of these cases are now dealt with at the school clinics, and only the serious cases are now reported to the society.

The Retreat, York

The 138th annual report of The Retreat, York, contains a note on the relation of out-patient departments to mental hospitals. Dr. Neil Macleod, medical superintendent, comments on the value of clinics for functional nervous disorders, which, he considers, should be established in every town of size and importance. They should be controlled by specialists, and render great assistance to those who are morbidly worried and distressed. Mental hospitals would be concerned with the graver forms of dysfunction which require hospitalization. The attendances at the clinic in York are steadily increasing each year, and with a larger staff still more therapeutic and prophylactic work could be accomplished; but Dr. Macleod believes that at present only the fringe of the possibilities is being touched, and that there remains a great amount of human distress in urgent need of relief. The general public should be brought to the realization that mental illness is not a doom or a blight, but a form of dysfunction which demands enlightened treatment. At The Retreat an extensive use is being made of the induction of artificial pyrexia, and encouraging results have been obtained in schizophrenics. For the last twelve years all cases of general paralysis have been inoculated with malaria with highly satisfactory sequels. Steps are being taken to implement the provisions of the Mental Treatment Act in respect of voluntary patients. Occupational therapy has been extended, and classes in physical drill and various kinds of dancing have been inaugurated. A scheme for the special instruction of student nurses as a preliminary to general hospital training is promising well.

The Hill End Mental Hospital

The Hill End Hospital for Mental and Nervous Disorders, near St. Albans, is a municipal mental hospital which has led the way in showing the valuable services that such institutions can now render under the provisions of the Local Government Act, 1929, and the Mental Treatment Act, 1930. The thirty-sixth annual report gives detailed particulars of what has been done during the last year. Extensions are about to be completed which will provide seventy-eight more male beds and 208 more female beds; there will then be 1,244 beds in all, including twenty-five female beds at Highfield Hall, reserved for well-conducted private patients. Except for a few cases of paratyphoid B the general health of the patients and staff was satisfactory, and the figures for specialist treatment show that the hospital is well provided for in all branches. The out-patient and child guidance clinics, two features of the Hill End service, are increasing in vigour, and, owing to the arrangements by which the Visiting Committee also deals with mental deficiency, mental defectives are quickly ascertained and deflected to persons who are able to look after them. Periodical visits are made by Dr. W. J. Kimber, the medical superintendent, or his deputy, as consulting physicians in mental disorders, to all the public assistance hospitals in the county in order to advise on mental cases generally. A certain number of recently qualified medical men and women are being trained as house-physicians for periods of six months, and training is also given to future almoners and psychiatric social workers. The hospital has received many visitors from other parts of the country and from abroad, and maintains close contact with the various voluntary bodies which aim at fostering and developing the mental health services. At Hill End, as elsewhere, occupational therapy plays an important part in treatment, and its possibilities are fully realized. Progress in social adaptation is encouraged by games, concerts, and dances, and especially by ward parties. The medical superintendent remarks that he has known the most unpromising patients make their first apparent step forward by singing at a ward concert, and on more than one occasion has seen actively suicidal patients keenly competing for a prize at musical-chairs. The results achieved at this hospital illustrate beyond doubt that the existing law gives complete facilities for the highest class of medical services, and that, in the popular phrase, it is "up to" local authorities all over the country to do likewise.

India

The Pasteur Institute, Kasauli

The total number of patients bitten by animals who attended this institute and its various centres during 1933 was 19,524, of whom 1,446 were ultimately found to be free from any risk of rabies. The vaccine used for treatment was a carbonized 5 per cent. Paris sheep preparation. The classification of cases in the report is a modification of Hempt's, and is based on the severity and position of the wounds. Three out of every four cases in Class IV at Kasauli with face wounds were treated with antirabic serum in addition to the ordinary vaccine therapy. This seemed to improve the results, and it is hoped to extend the treatment when a sufficient supply of serum becomes available, and to introduce it also at the treatment centres. No deaths were reported among Europeans; there were twenty among Asiatics treated at Kasauli, and sixty-three at the various centres. There were five cases of post-treatment paralysis. In one case acute myelitis followed one week after the completion of treatment, with complete loss of power in the legs and abdominal muscles, and weakness in the intercostals and left arm. Bladder and rectum control were lost, retention of urine and faeces necessitating catheterization and enemata. Knee-jerks disappeared, but ankle-jerks could be elicited. The tendon reflexes were exaggerated in the left arm. The patient died fourteen months after the completion of treatment. Lieutenant-Colonel H. E. Shortt, I.M.S., director of the Institute, adds that complaints attributed to antirabic treatment were received from 109 patients, but they proved to be groundless in most cases. The report closes with full statistical tables.

Medical Aid by Women for Women

The fiftieth annual report of the National Association for Supplying Medical Aid by Women to the Women of India (Countess of Dufferin's Fund) relates to the calendar year 1934, the jubilee year of the Fund. It contains the reports of the constituent societies and of the institutions related to the association. Owing to financial difficulties it was found necessary to postpone the enlargement of the Lady Hardinge Medical College, New Delhi, and a modified plan of extension is under consideration. The separation of the obstetrical and gynaecological units has been achieved, and each department is now satisfactorily housed in its own wards. A supply of radium has been received from England for the treatment of uterine carcinoma. Among the most pressing needs of the hospital is that of a biochemistry department. At the Government Victoria Caste and Gosha Hospital, Madras, there has been an unusual number of abnormal labour cases. Additional accommodation was provided by extending the delivery ward, and the process of constructing a new out-patient block is well advanced. The Dufferin Hospital, Karachi, has benefited financially by various grants and increases in the receipts from fees from paying patients. In March, 1934, the Lady Sykes block for septic midwifery was opened; it is the only one of its kind in Sind, and is limited to the reception of midwifery cases which have become septic after delivery or are in a septic

condition before childbirth. New nursing quarters have been erected, and the whole water system of the hospital has been renewed, while the drainage system has been overhauled. The question of rebuilding the Lady Dufferin Victoria Hospital at Calcutta is under consideration ; the maternity hospital in particular has been severely overtaxed. From the All-India Institute of Hygiene and Public Health, Calcutta, it is reported that the first course for the diploma in maternity and child welfare was completed during 1934 ; the course has had to be lengthened from nine months to approximately ten and a half, to make it coincide with the period of study for the diploma in public health. The new Lady Willingdon maternity block was opened at the Dufferin Hospital, Lucknow, and a nurses' dormitory has also been provided. These few instances taken from the large number of reports indicate how great is the work of the National Association, in addition to its task of securing medical education for women. Frequent reference is also made to the training of native midwives in all parts of India.

The Campaign Against Malaria in Bengal

The fifteenth annual report of the Central Co-operative Anti-malaria Society recalls the fact that Ronald Ross's epoch-making discovery of the mode of transmission of malarial infection was made at Calcutta in 1898, but that more than twenty years elapsed before the Central Society was brought into being at Calcutta to create and guide the anti-malarial campaign throughout Bengal. It has since created about 2,000 societies covering some 84,000 villages, and with more financial support could have done even better. The society holds that anti-larval action is the best form of prophylaxis, though quinine, atebrin, and plasmoquine have their uses also. There are now malaria-free districts in many parts, but there is still extensive work to be done in the delta regions of central Bengal. Drainage schemes seem to offer the most promising results here, and the reasons for this are expounded in detail. Vested interests have been found to be the most difficult antagonists to overcome, and the economic possibilities of drainage schemes are as yet inadequately appreciated, so the educational work of the society requires to be intensified. The report contains details of the progress made in various parts of the country, and much is hoped for when the Government's land development legislation is fully operative.

Parboiled Rice and Epidemic Dropsy

Cerebro-spinal meningitis and epidemic dropsy have been specially investigated by the Calcutta School of Tropical Medicine during 1934. The former has been on the increase in India for some years, and many cases have appeared in Calcutta. An effort was therefore made to discover whether the bacterial strains responsible were the same as those prevailing in Europe and America, and whether the sera already in use elsewhere could be employed. Active research has been initiated, and luxuriant meningococcal growths have been obtained on a pigeon-blood medium. A large number of strains have been isolated, and their differentiation into types is in progress. Epidemic dropsy has been responsible for much incapacity and a heavy death rate for some thirty years in Bengal and Bihar. In Calcutta, 1934 proved to be another epidemic year, and a considerable amount of work was done on the thirty cases admitted to the Carmichael Hospital and on the 173 cases seen in the out-patients' department. Active field work was undertaken in the Oxford Mission Settlement at Behala, the leper home and the district of Purulia, and elsewhere. It was found that the disease in rural areas resembled closely in its clinical aspects urban outbreaks. Serological signs include a reduction in the relative viscosity, surface tension, buffer action, and in albumin, while the globulins are found to increase. This diminution of albumin is responsible for the lowering of relative viscosity, buffer action, and the disturbance of the fluid exchange between the blood and the tissues. The decreased surface tension and the increased pseudo-globulin content in these cases is interesting in view of the fact that such changes are associated with anaphylactoid reactions. Evidence was found pointing to a gram-positive spore-bearing bacillus in parboiled rice as the aetiological agent. The toxic or other sequels were arrested by stopping the ingestion of such rice, but reappeared when rice was again restored to the dietary. This was apt to occur even when healthy rice was used, suggesting that infection of the rice occurred in the intestine of the patient. Work is in progress at the Calcutta School to identify these organisms and to determine their serology. The School has also drawn up a circular laying down instructions for the prevention and treatment of the disease. Other advances made by the School in conjunction with the Carmichael Hospital for Tropical Diseases include the isolation of no fewer than twelve types of choleraphage and fifteen other types of vibriophage. A carrier investigation was begun in July, 1934, and is to be repeated this year. An inquiry is proceeding into hill diarrhoeas and dysenteries in Darjeeling. The mosquito transmission inquiry under the Indian Research Fund Association proceeds: a close correlation has been established between the mosquito density in Calcutta city and the new admissions to hospital for dengue. Carbasone has been found to be most effective in the treatment of intestinal amoebiasis and absolutely non-toxic ; the stools become parasite-free on the third or fourth day of treatment.

Scotland

Public Health Administration in Dundee

Although the year 1934 was a comparatively healthy one for the population of Dundee, the corrected death rate from all causes and at all ages reaching a low record of 13.6 per 1,000, there are several points of general interest in the annual report of the medical officer of health, Dr. W. L. Burgess. After a lapse of fifteen years typhus fever reappeared, two cases being diagnosed. The clinical evidence was very suggestive in both, the rash being characteristic in one. Both patients were dock labourers, and it was suspected, though not proved, that they had been infected in the course of work in a ship which arrived direct from Cuba with a clean bill of health. The Weil-Felix reaction was positive in both. A small epidemic of typhoid fever was traced to contamination of a water supply by a land drain, but house-to-house visitation and the close observation of contacts cut short the epidemic, and the closing in of the stream eliminated any chance of recurrence. Dr. Burgess commends the new Housing (Scotland) Bill, with the exception of the provision regarding a child under 10 years as the equivalent of half an adult from the point of view of overcrowding, and an infant under 12 months as negligible. He argues in the first case that the child is at the period of its greatest susceptibility to infectious disease, and that therefore any chance of overcrowding must be avoided. In 1934 a routine inspection of certain slum-clearance houses was undertaken for the first time in Dundee. Of the 495 houses 63 per cent. were rated as clean, 30 per cent. as fair, 5 per cent. as unsatisfactory, and 2 per cent as dirty. Dr. Burgess doubts whether it is yet possible to organize the hospitals satisfactorily from the administrative point of view. Little provision has been made by the community for home treatment, and with the enlargement of the medical services in this direction, with the family practitioner and the hospital medical officer checking the flow of admissions, there should be a falling off in the number of hospitalized cases. Many anomalies require to be removed: one patient receives free treatment for puerperal fever, while another has to pay for treatment for appendicitis. Dr. Burgess thinks that hospital treatment will have to be included in an enlarged national health insurance scheme. Free access to hospitals must be permitted to family doctors, and general medical practitioners must have more frequent opportunities of joining the visiting hospital staffs. The whole health organization suffers by lack of continuity in medical supervision of the individual.

CORRESPONDENCE

Circumcision

SIR,—I was interested in the technique described by Dr. D. I. Connolly, as I endorse his view that circumcision can be followed by many unfortunate consequences. Apart from the immediate physical effects, there is considerable evidence that an operation which is a perfect result from a surgical point of view may yet cause psychological trauma, which may either show itself at once or become obvious only in adult life. As the likelihood of such psychological trauma appears to increase with the age of the child, it seems wise to deal with the condition at the earliest age possible, whether the prepuce is already adherent or the opening so small that adhesions are likely to occur.

I first learned from Mr. Geoffrey Keynes about five years ago that stretching the foreskin was a useful alternative to circumcision, and since that time I have not found it necessary to operate on any male child in my practice except in the case of orthodox Jews. My method is to stretch and free the foreskin daily, using a probe and sinus forceps, and doing it so gently that the child does not protest. This method will entail daily visits for one or two weeks, but after that the foreskin is quite free and can be pushed back by the mother when the child is washed as often as seems necessary to keep the glans clean. The stretching may be started soon after birth, and as a rough guide that a baby can stand this amount of interference I usually wait until it has regained its birth weight. With adequate patience the whole thing can be done entirely without pain or risks, and to my mind the operation of circumcision in childhood is now seldom justifiable.—I am, etc.,

London, N.W.1, Aug. 26th. CECILE BOOYSEN.

SIR,—Dr. Connolly is to be congratulated on having taken a first step towards the treatment of phimosis. May I hope that he will soon take a second?

The cool assumption of some surgeons that they know better than providence how little boys should be made is laughable and irritating. It is quite time that this horrible mutilation should no longer be regarded as having any sanitary or therapeutic value, and phimosis should be relegated to the list of imaginary diseases. Circumcision is, and always was, a tribal rite, and has no place in surgery.—I am, etc.,

Kirkby, near Liverpool, Aug. 26th. R. AINSWORTH.

SIR,—Referring to Dr. D. I. Connolly's letter in the *Journal* of August 24th (p. 359) on circumcision, I am glad to hear of someone at last who is opposed to unnecessary circumcision: the majority of doctors and most nurses are obsessed with the idea that about 90 per cent. of male infants should be circumcised. The prepuce has its definite uses, which need not be gone into here. I myself have practised a similar method to the one described by Dr. Connolly for over thirty years—with success, but with this difference: I always use a local anaesthetic and *no* dressings or appliances.

After separation of the prepuce from the glans penis, the prepuce is completely retracted, a mild antiseptic ointment is applied, and the foreskin is replaced in its normal position. All that is necessary thereafter is that the prepuce should be completely retracted once daily and the ointment applied by the nurse or mother until it goes back easily and the mucous membrane, when abraded, is seen to be healed. This usually requires about seven to ten days. Subsequently the prepuce should, for purposes of cleanliness, be retracted in the daily bath and cleaned with a little wet cotton-wool.—I am, etc.,

D. GORDON CARMICHAEL, M.B., Ch.B.Edin.

Putney, S.W.15, Aug. 23rd.

SIR,—Although *severe* phimosis in infants may occasionally require circumcision, I was once told by a surgeon who had spent twenty years in general practice that he had almost entirely avoided the operation by completely stripping back the foreskin, aided by dilatation if necessary, in the newborn and others, and by instructing the mother to see that it would peel back and to clean behind it each time the child was bathed.

My own small experience is confirmatory. Every urologist would welcome the instilling of this particular habit of cleanliness into possible future patients.—I am, etc.,

Birmingham, Aug. 26th. MALCOLM BAILLIE.

SIR,—Dr. D. I. Connolly's very excellent procedure in the treatment of phimosis (*Journal*, August 24th, p. 359) has one serious drawback—the prepuce still remains. The teaching that the male should be circumcised on the eighth day has stood the test of time, and still remains sound. That the prepuce should be removed, whether phimosis is present or not, is an opinion which deserves the careful consideration of every doctor practising midwifery. Circumcision becomes a gentle art if practised in accordance with this theory.—I am, etc.,

Blackpool, Aug. 27th. JOSEPH MCAULEY.

Paraldehyde as a Pre-anaesthetic

SIR,—I should like to emphasize what has already been said by Dr. Foote (August 10th) and Mr. Whigham (August 17th) on the pre-anaesthetic uses of paraldehyde. Years ago one heard of trouble ensuing from its irritation of the rectum; in one case the mucous membrane of the rectum sloughed away with serious results. These happenings did much to damage the reputation of paraldehyde at a time when pre-anaesthetic medication was in its infancy.

Now the choice of drugs recommended and used before anaesthesia is so large as to be bewildering, and little attention seems to be paid to any ill effects. There is a technique which, if followed, makes paraldehyde as safe as any other narcotic.

It should be used in a dosage of one drachm to the body weight of the individual, an eight-stone patient taking one ounce, which should be the minimal dose. It should be made up as a fine emulsion, otherwise it may not be absorbed and will cause irritation. It should be given gradually, and in the method I have adopted after various trials the injection is begun by a nurse one hour before the operation. The bowel is washed out and emptied; then, with a fine catheter, one-third of the quantity of paraldehyde is run in and the catheter is clipped and left in the rectum—if small it is not inconvenient. The patient lies undisturbed in a darkened room. Twenty minutes later the bedclothes are laid back without disturbing the patient and the second third of the dose is administered, and twenty minutes later the remainder. Twenty minutes after that the patient should be sleeping soundly; her eyes are covered, and she is moved to the theatre and the ordinary anaesthetic given; there is no need to take her to the anaesthetic room. After the operation she continues to sleep on for perhaps twelve hours. If desired the rectum can be washed free of paraldehyde after the operation; this shortens the duration of its effect.

A nervous patient, as in a case of exophthalmic goitre, need never know that an operation impends: she is given

an enema each day, and when the paraldehyde is run in she thinks it is routine treatment, and simply goes to sleep. There is considerable latitude about the dose, and I have used up to three ounces at a time in a case of acute obstruction ; its effect lasted over the washing out of the bowel for forty-eight hours.

There is one point which should be stressed—that is, not to give paraldehyde after morphine. Some of the accidents were due to neglect of this rule, for if the drug irritates the rectum the bowel contracts and expels it, but if the sensibility is dulled it may be retained, and then irritation may be severe. I have never known harm result if paraldehyde is employed in this way, and am fond of using it. Its one drawback is its smell.—I am, etc.,

London, W.1, Aug. 26th. DUNCAN C. L. FITZWILLIAMS.

Gas and Air Analgesia in Labour

SIR,—Having taken much interest in the use of gas and air analgesia in labour as suggested by Dr. Minnitt, I have been particularly anxious to ascertain the causes of failures to obtain satisfactory results from this method, and, so far as I have been able to understand them, failures may be classified under two main headings—failures due to the patient herself and failures due to faulty administration.

Failures Due to the Patient Herself

A. Some patients are unwilling to co-operate and will not breathe in the mixture of gas and air, sometimes throwing the facepiece of the apparatus away altogether and sometimes pressing it firmly on their faces only in "expiration."

B. Patients of a particularly nervous temperament fear profoundly any form of anaesthetic and do not understand the difference between analgesia—relief from pain without loss of consciousness—and anaesthesia—complete loss of consciousness. This should be explained beforehand, and they should understand what to expect from analgesia.

C. We also find occasionally that women think that they are doing something profoundly wicked in seeking to obtain relief from the pains of childbirth, and some really dislike gas and prefer pain to the inhalation of nitrous oxide.

D. Patients of the heavy athletic type may be peculiarly insusceptible to gas and require a higher percentage of nitrous oxide in air than is usually given.

It must be remembered that our object is to find some method of giving relief in labour which anyone, not only the skilled anaesthetist, can use ; so that we have to arrange for the patient to receive a percentage of gas which cannot injure the most fragile person. It is evident, then, that there will be some people for whom the percentage of gas will be insufficient, but to permit the varying of this percentage at the will of an unskilled administrator is undesirable. The athletic type and the nervous type generally respond to the administration of 1/4 grain of morphine given *early* in labour, or some other form of premedication can be used.

E. Those patients who have had previous experience of an instrumental delivery under full anaesthesia are disappointed that they do not go "right off," but have to remain conscious and help themselves towards a normal spontaneous delivery.

Failures Due to Faulty Administration

Although the administration of gas and air analgesia is absurdly easy, there is a technique of giving the analgesia, and unless this is understood bad results will be obtained.

A. It is necessary to see that the apparatus is in order, that the cylinders contain gas, and that they are firmly screwed on to the machine ; and one must not forget to turn on the gas and to make sure that this is flowing.

B. The facepiece must fit the patient's face and must be a comfortable fit at that, and she must be shown how to breathe in and out of a facepiece firmly applied to her face, as the smallest air leak will defeat all attempts to obtain analgesia.

C. She must be told how, when she comes to the second stage of labour and is ready for "pushing down," she must take four or five breaths before doing so, push down, take more breaths, and then push again. Neglect of this very simple explanation leads to many failures.

D. It is sometimes found that failure is due to a tardy administration, especially in cases where contractions are unusually strong and frequent. The best results are obtained from starting the gas and air before full dilatation takes place, so that the patient can be educated in the method and understands how to use it before the second stage of labour begins.

E. The actual birth of the child causes severe pain, often unrelieved by gas and air because full advantage is not taken of the analgesia. The administration should be continuous during the last ten minutes or so, and good results will be obtained.

We find at the Wellhouse Hospital, where the major part of the administration is left to the nursing staff under relatively distant medical supervision, that we get about 5 per cent. of failures, and this figure has remained remarkably constant over a series of nearly 700 cases. (This is without any form of premedication.) Indeed, I am convinced that the degree of success obtained from the use of gas and air analgesia in labour is directly proportional to the ability and conscientiousness of those in charge of the administration.

Gas and air analgesia is not the last word in our efforts to obtain relief of pain in childbirth, but it is a remarkably successful attempt to solve a problem which has baffled mankind since the beginning of time. It would be truly a national disaster if this method were to fall into disrepute by reason of any lack of effort on the part of those responsible to obtain the most satisfactory results through their failure to understand how these results may be achieved.—I am, etc.,

New Barnet, Herts, Aug. 22nd. JOHN ELAM.

"Responsible Experience under Guidance"

SIR,—Your readers will recall the motion put forward by Dr. Mona McNaughton on behalf of Newcastle-on-Tyne at the Annual Representative Meeting, the object of which was to ensure a period of experience in medical practice after graduation but before registration. They will also remember that the motion was not put to the vote, and that Sir Henry Brackenbury explained to the meeting that the Committee on Medical Education had recommended "a period of responsible experience under guidance." I think it would be accurate to say that Newcastle's motion had the sympathy, if not the support, of every Representative present.

In his "Comments on Medical Training and Practice" in the Educational Number of the *Journal* (p. 367) Mr. Keith Monsarrat refers to the difficulty of providing for this "period." He mentions a proposal of the General Medical Council that, when clerking or dressing, the student shall be resident for a month. One of the alternatives Mr. Monsarrat suggests is that "the medical schools should aim at arranging for the *registered graduate* a year's practical experience under guidance before *independent* practice, and that the Medical Acts be amended to require this."

Now, Sir, to engage in "a year's independent practice"—or so—is a thing which some thousands of medical men in this country have not only aimed at but achieved, and they have done so by taking house appointments. Unfortunately there are not enough of these to permit every graduate to hold one ; nor do I think it was the intention of the Newcastle motion that they should. In

any case, having regard to the present financial situation of most hospitals, they would find it rather a strain to increase their establishment of salaried medical officers as Mr. Monsarrat suggests, if not an impossibility. I do not agree that a new graduate practising "under supervision" should be classed as, or in fact is, "a subordinate grade of medical practitioner" any more than the qualified assistant is "subordinate" to his principal.

What is required is not so much *clinical* instruction as *instruction in the method of conducting a practice*—a thing which no hospital can provide. The man who is as keenly alive as anybody to what is lacking in the curriculum is the general practitioner, who constitutes the majority of the profession; either because he remembers his own early difficulties, or because, as an employer of labour, he realizes the shortcomings of the "subordinate" whom he employs as assistant or locumtenent. It is not so much lack of clinical knowledge that he complains of; clinical knowledge will come in time. It is the handling of patients and ignorance of the business of running a practice that is most noticeable—and naturally so.

By far the greatest number of graduates whose names are placed on the *Register* will become general practitioners, and it is only right that they should be given, as a necessary part of their curriculum, an opportunity of learning something about it. Even specialists would be the better for knowing a little more about general practice. As an article in the *Guy's Hospital Gazette* for August 17th, entitled "Back to Apprenticeship?" says: "It would provide an opportunity for being taught the hundred and one little things that otherwise have to be acquired by experience, perhaps bitter experience."—I am, etc.,

Ashtead, Surrey, Aug. 30th. H. M. STANLEY TURNER.

*** Comment on the article referred to is made in an annotation on page 462.

The Medical Curriculum

SIR,—I have read with considerable interest the reports and discussions dealing with the medical curriculum, and I think that there is a definite tendency to underrate the value of the set academic lecture with the usual "notes." Most people regard lectures as redundant in this age of excellent textbooks, but there is a great deal to be said for the system of distributing printed notes to be read over before and after the lecture and then filed by the student. This obviates "dictation," and secures the undivided attention of a class which is prepared for the lecturer's text: excellent though many textbooks are, nevertheless attention to phraseology and style produces a result less easy to read and assimilate than notes made in colloquial speech.

Most students who discuss their work among themselves derive a great deal of information from one another, and close collaboration between a group of students often results in the pooling of their knowledge and overcomes the difficulty of being unable to attend several important teachers who may be performing simultaneously. Giving short bedside talks upon their own ward cases is an excellent exercise for all dressers and clerks and useful practice for viva voce examinations. This practice should become a standard at all large teaching hospitals; the clinician may then follow and strengthen the account given by the clerk and show how it might be strengthened.

It is difficult to write a good *short* textbook, and nothing depresses the harassed student more than bulk. An astute clinical aphorism or a personal clinical account is like an oasis in a desert of print, and a line-drawing is often more explicit than much language.—I am, etc.,

H.M.S. *Cornwall*, Aug. 3rd. DUDLEY P. GURD.

The Control of Tuberculosis

SIR,—Scientific steps for the control of this disease are noticeable by their absence. It is apparently not possible to hope for more active steps to be taken until we can either provide compulsory hospital treatment for the helpless and dying patients, when there are children in the house, or offer these children, and adults too, who are in close contact with these helpless and dying patients, protection by some form of treatment for building up their general powers of resistance against the risk of infection by massive doses.

In a recent number of the *British Medical Journal* we read the opinion of one doctor that, until strict segregation of all positive lung cases is carried out, the disease will not die out or be exterminated. Another doctor draws attention to the dangers to which the young have been exposed by these helpless patients. We are told that for the young and rising generation we shall do all in our power to prevent exposure to infection; and years ago this was the considered advice of the American writer Dr. A. Krause. Unfortunately we know now that races that have been free from tuberculosis fall easy victims when they happen to be exposed to the risk of infection. It is also to be noted that more careful expert examination brings to light cases of tuberculosis that would escape detection by ordinary means, and this is shown by the report of the Chief Tuberculosis Officer for Belfast, who explains the fact that 595 more patients were examined in 1934 than in 1930, and 448 more patients found to be suffering from tuberculosis, on the grounds of the more extended use by general practitioners of the facilities provided. It is probably true that there are a great many cases of this infectious disease unrecognized by the ordinary general practitioner throughout the country. The provision of hospital beds for every infectious case of tuberculosis and their compulsory isolation is not possible on account of the cost involved.

In the animal world every animal that reacts to tuberculin is considered to be infected with this disease and a possible source of infection to other healthy animals, but among human beings a totally different attitude is adopted. Every human being who reacts to tuberculin is *not* considered to be infected with this disease and a possible source of infection to other healthy individuals. Until such time as we adopt the veterinary attitude to this tuberculin reaction we can never be certain that we know the total number of infectious cases. It is well known that persons suffering from this disease, even in an advanced stage, may give every appearance of ordinary good health and yet be highly infectious. We cannot, therefore, rely on being able to prevent exposure to infection for the young and rising generation, so that we must devote our efforts to exploring the possibility of being able to increase the general powers of resistance against tuberculosis in all those young persons who are in contact with known cases of tuberculosis.

At the present time our real efforts are chiefly directed to such general hygienic methods as better housing, a higher standard of living, more healthy workshops, and less alcoholism. These efforts must on no account be overlooked or their value minimized; but they must be supplemented by some scientific means of building up increased powers of resistance. To do this it is necessary to bear in mind that human beings are capable of becoming infected by the bovine, as well as the human, variety of the tubercle bacillus. Infection with the bovine bacillus in childhood may exercise some sort of protection against infection with the human bacillus in later years, but this cannot be accepted as having been proved.

There are to-day three specific methods which may provide the young with this increased power of resist-

ance for a certain period of time, and they are: (1) By using ordinary human tuberculin, and it is possible that there is a short period of definite protection given by its use. (2) By using a bovine bacillus that has lost its powers of setting up active tuberculosis, such as is seen in B.C.G., the Pasteur Institute remedy. (3) A dried blood plasma in which it is claimed that both bovine and human tuberculins are present. It is possible that a human tuberculin tends to protect against a bovine infection and a bovine tuberculin against a human infection, and if that supposition should be confirmed by experimental evidence it will point the way to the use of a protective remedy in which both human and bovine tuberculins are included. Here is a field for future research well worthy of study by our medical research workers.—I am, etc.,

SYDNEY GORDON TIPPETT, M.B.,
Late Medical Superintendent, Nordrach-upon-Mendip Sanatorium.

Wedmore, Aug. 19th.

Spinal Drainage in Poliomyelitis and Meningitis

SIR,—In reading Dr. R. W. Fairbrother's lecture on poliomyelitis in the *Journal* of May 4th (p. 916) I was greatly impressed by the similarity of treatment of poliomyelitis and that of cerebro-spinal meningitis which occurred on Salisbury Plain in 1916 and 1917.

Dr. Fairbrother especially attracted my attention by his remarks on therapy. He says that amongst numerous methods tried the only one having a definitely favourable effect is *spinal drainage*, the cerebro-spinal fluid being usually under pressure. By repeated drainage it might be possible, he states, to alleviate the increased pressure in the cord by removing some of the infiltrating cells. This secondary infiltration is often very marked, and no doubt tends to exaggerate the symptoms. At Tidworth in 1916–17 cases of cerebro-spinal meningitis were frequently brought in unconscious, and on being tapped were immediately relieved. The tapping had to be repeated again and again on the recurrence of symptoms. This seemed to me like "putting the cart before the horse," for symptoms were the *effect* of pressure and absorption, and their presence indicated further damage—often permanent—to the nerve centres. This should obviously be prevented by keeping the intraspinal pressure normal, not waiting for symptoms to indicate the necessity for further tapping. *Continuous* drainage of the cerebro-spinal fluid seemed to be the only rational treatment, and, it being a new departure from the old-established custom, I wrote an article on the subject in the *British Medical Journal*. In a subsequent issue of the *Journal* Sir Humphry Rolleston replied, agreed with what he was pleased to term "my logical suggestion," and dealt with some of the difficulties attending the proposed procedure. I also advocated "tapping" in all cases where nervous symptoms were much accentuated, as likely to give relief—as it invariably did—by removing some infective material and reducing pressure and further absorption. The continuous drainage was to be controlled by a "gauge" to indicate normal pressure and to act automatically—of course under strictest antiseptic precautions. What at the time seemed perhaps a rather bold procedure and contrary to accepted methods was really quite logical, and merely the application of the old and immutable principle of "drainage" and relief of pressure, thus preventing further absorption and pressure damage.

In following "new" methods principles are apt to be obscured, but remain, and are without doubt the only real guide in difficult conditions. As Sir Cuthbert Wallace remarks in the same issue of the *Journal* (May 4th, 1935, p. 912), "if one tries to gauge the changes in surgery since the early days of the present century. I think it is true to say that the period is marked more by an improvement in methods already in use than by any outstanding innovation." I agree; the principles remain, though they may be temporarily obscured by "evanescent camouflage." In his conclusion Dr. Fairbrother remarks that the sporadic nature of poliomyelitis in England indicates that the majority of the adult population have acquired some immunity. Curiously enough, the same remark might be applied to the outbreak of cerebro-spinal meningitis already referred to; for on investigation about 2 per cent. of the population at that time were found to be carriers.—I am, etc.,

H. V. DREW, F.R.C.S.,
Late Surgical Specialist at Netley, and later in charge of the Surgical Division at Tidworth.

Christchurch, N.Z., July 18th.

Peritonsillar Abscess in Infancy

SIR,—With reference to Dr. Alex Maclean's article on this subject (*Journal*, August 10th, p. 254) the following may be of interest.

A boy, at whose birth I attended on June 14th, 1933, was brought to see me on March 24th, 1934, as the mother thought it possible he had mumps. There was very slight fullness round the angle of the left jaw, but no obvious adenitis, and the parotid gland seemed normal. The temperature was also normal. The most striking feature was that the child kept trying to clear his throat, as any older person might, to get rid of some irritation, such as a hair. I had never previously seen an infant act in this way. There was nothing abnormal in the appearance of the throat except for the presence of mucus, which was associated with a nasal catarrh. Though not quite satisfied with the diagnosis, I concluded the condition was a pharyngitis, causing irritation and probably giving rise to an adenitis. I prescribed nasal drops, and asked the mother to let me know if the condition did not clear up. At this stage the infant did not seem at all ill, and there was no embarrassment of breathing. On March 27th I received a rather urgent message to visit the child, as he was choking. Acute distress had suddenly developed in the previous few hours. The left side of the neck was markedly swollen, and it was obvious that breathing was seriously obstructed, though the sound was guttural rather than strident as in laryngeal croup. On examination the throat was seen to be almost closed by a bulging peritonsillar abscess of the left side. This I opened, and evacuated rather light yellow thin pus with immediate relief of breathing. Recovery was uneventful and the child has been well since.

In view of Dr. Maclean's search of the literature, some points of interest arise. (1) This child was only 9½ months old. (2) Had I sent him to hospital he would have arrived in Ruchill and probably have given Dr. Maclean three cases in one year instead of two. (3) If peritonsillar abscess in infancy is as rare as the literature suggests, it is surprising that there should be three cases within nine months in the part of Glasgow served by Ruchill Hospital. As most peritonsillar abscesses are dealt with by general practitioners, it seems possible from the above experience that periodically in some part of the country a general practitioner opens such an abscess in an infant, says to himself that this is rather interesting and that he must send a note to the *B.M.J.*, but having filled up "M.R.'s, M.R.E.'s, D.M.2A's," etc., decides he will write that note "to-morrow."

It would be of interest to hear from any who have come across the condition in infants or young children. Some years ago I opened an abscess in a girl of 5. Certainly I will keep a careful watch on the next infant I hear trying to clear his throat like an old man!—I am, etc.,

W. J. S. CAMERON.

Glasgow, Aug. 19th.

any case, having regard to the present financial situation of most hospitals, they would find it rather a strain to increase their establishment of salaried medical officers as Mr. Monsarrat suggests, if not an impossibility. I do not agree that a new graduate practising "under supervision" should be classed as, or in fact is, "a subordinate grade of medical practitioner" any more than the qualified assistant is "subordinate" to his principal.

What is required is not so much *clinical* instruction as *instruction in the method of conducting a practice*—a thing which no hospital can provide. The man who is as keenly alive as anybody to what is lacking in the curriculum is the general practitioner, who constitutes the majority of the profession; either because he remembers his own early difficulties, or because, as an employer of labour, he realizes the shortcomings of the "subordinate" whom he employs as assistant or locumtenent. It is not so much lack of clinical knowledge that he complains of; clinical knowledge will come in time. It is the handling of patients and ignorance of the business of running a practice that is most noticeable—and naturally so.

By far the greatest number of graduates whose names are placed on the *Register* will become general practitioners, and it is only right that they should be given, as a necessary part of their curriculum, an opportunity of learning something about it. Even specialists would be the better for knowing a little more about general practice. As an article in the *Guy's Hospital Gazette* for August 17th, entitled "Back to Apprenticeship?" says: "It would provide an opportunity for being taught the hundred and one little things that otherwise have to be acquired by experience, perhaps bitter experience."—I am, etc.,

Ashtead, Surrey, Aug. 30th. H. M. STANLEY TURNER.

*** Comment on the article referred to is made in an annotation on page 462.

The Medical Curriculum

SIR,—I have read with considerable interest the reports and discussions dealing with the medical curriculum, and I think that there is a definite tendency to underrate the value of the set academic lecture with the usual "notes." Most people regard lectures as redundant in this age of excellent textbooks, but there is a great deal to be said for the system of distributing printed notes to be read over before and after the lecture and then filed by the student. This obviates "dictation," and secures the undivided attention of a class which is prepared for the lecturer's text: excellent though many textbooks are, nevertheless attention to phraseology and style produces a result less easy to read and assimilate than notes made in colloquial speech.

Most students who discuss their work among themselves derive a great deal of information from one another, and close collaboration between a group of students often results in the pooling of their knowledge and overcomes the difficulty of being unable to attend several important teachers who may be performing simultaneously. Giving short bedside talks upon their own ward cases is an excellent exercise for all dressers and clerks and useful practice for viva voce examinations. This practice should become a standard at all large teaching hospitals; the clinician may then follow and strengthen the account given by the clerk and show how it might be strengthened.

It is difficult to write a good *short* textbook, and nothing depresses the harassed student more than bulk. An astute clinical aphorism or a personal clinical account is like an oasis in a desert of print, and a line-drawing is often more explicit than much language.—I am, etc.,

H.M.S. *Cornwall*, Aug. 3rd. DUDLEY P. GURD.

The Control of Tuberculosis

SIR,—Scientific steps for the control of this disease are noticeable by their absence. It is apparently not possible to hope for more active steps to be taken until we can either provide compulsory hospital treatment for the helpless and dying patients, when there are children in the house, or offer these children, and adults too, who are in close contact with these helpless and dying patients, protection by some form of treatment for building up their general powers of resistance against the risk of infection by massive doses.

In a recent number of the *British Medical Journal* we read the opinion of one doctor that, until strict segregation of all positive lung cases is carried out, the disease will not die out or be exterminated. Another doctor draws attention to the dangers to which the young have been exposed by these helpless patients. We are told that for the young and rising generation we shall do all in our power to prevent exposure to infection; and years ago this was the considered advice of the American writer Dr. A. Krause. Unfortunately we know now that races that have been free from tuberculosis fall easy victims when they happen to be exposed to the risk of infection. It is also to be noted that more careful expert examination brings to light cases of tuberculosis that would escape detection by ordinary means, and this is shown by the report of the Chief Tuberculosis Officer for Belfast, who explains the fact that 595 more patients were examined in 1934 than in 1930, and 448 more patients found to be suffering from tuberculosis, on the grounds of the more extended use by general practitioners of the facilities provided. It is probably true that there are a great many cases of this infectious disease unrecognized by the ordinary general practitioner throughout the country. The provision of hospital beds for every infectious case of tuberculosis and their compulsory isolation is not possible on account of the cost involved.

In the animal world every animal that reacts to tuberculin is considered to be infected with this disease and a possible source of infection to other healthy animals, but among human beings a totally different attitude is adopted. Every human being who reacts to tuberculin is *not* considered to be infected with this disease and a possible source of infection to other healthy individuals. Until such time as we adopt the veterinary attitude to this tuberculin reaction we can never be certain that we know the total number of infectious cases. It is well known that persons suffering from this disease, even in an advanced stage, may give every appearance of ordinary good health and yet be highly infectious. We cannot, therefore, rely on being able to prevent exposure to infection for the young and rising generation, so that we must devote our efforts to exploring the possibility of being able to increase the general powers of resistance against tuberculosis in all those young persons who are in contact with known cases of tuberculosis.

At the present time our real efforts are chiefly directed to such general hygienic methods as better housing, a higher standard of living, more healthy workshops, and less alcoholism. These efforts must on no account be overlooked or their value minimized; but they must be supplemented by some scientific means of building up increased powers of resistance. To do this it is necessary to bear in mind that human beings are capable of becoming infected by the bovine, as well as the human, variety of the tubercle bacillus. Infection with the bovine bacillus in childhood may exercise some sort of protection against infection with the human bacillus in later years, but this cannot be accepted as having been proved.

There are to-day three specific methods which may provide the young with this increased power of resist-

ance for a certain period of time, and they are: (1) By using ordinary human tuberculin, and it is possible that there is a short period of definite protection given by its use. (2) By using a bovine bacillus that has lost its powers of setting up active tuberculosis, such as is seen in B.C.G., the Pasteur Institute remedy. (3) A dried blood plasma in which it is claimed that both bovine and human tuberculins are present. It is possible that a human tuberculin tends to protect against a bovine infection and a bovine tuberculin against a human infection, and if that supposition should be confirmed by experimental evidence it will point the way to the use of a protective remedy in which both human and bovine tuberculins are included. Here is a field for future research well worthy of study by our medical research workers.—I am, etc.,

SYDNEY GORDON TIPPETT, M.B.,
Late Medical Superintendent, Nordrach-upon-Mendip Sanatorium.

Wedmore, Aug. 19th.

Spinal Drainage in Poliomyelitis and Meningitis

SIR,—In reading Dr. R. W. Fairbrother's lecture on poliomyelitis in the *Journal* of May 4th (p. 916) I was greatly impressed by the similarity of treatment of poliomyelitis and that of cerebro-spinal meningitis which occurred on Salisbury Plain in 1916 and 1917.

Dr. Fairbrother especially attracted my attention by his remarks on therapy. He says that amongst numerous methods tried the only one having a definitely favourable effect is *spinal drainage*, the cerebro-spinal fluid being usually under pressure. By repeated drainage it might be possible, he states, to alleviate the increased pressure in the cord by removing some of the infiltrating cells. This secondary infiltration is often very marked, and no doubt tends to exaggerate the symptoms. At Tidworth in 1916–17 cases of cerebro-spinal meningitis were frequently brought in unconscious, and on being tapped were immediately relieved. The tapping had to be repeated again and again on the recurrence of symptoms. This seemed to me like "putting the cart before the horse," for symptoms were the *effect* of pressure and absorption, and their presence indicated further damage—often permanent—to the nerve centres. This should obviously be prevented by keeping the intraspinal pressure normal, not waiting for symptoms to indicate the necessity for further tapping. *Continuous* drainage of the cerebro-spinal fluid seemed to be the only rational treatment, and, it being a new departure from the old-established custom, I wrote an article on the subject in the *British Medical Journal*. In a subsequent issue of the *Journal* Sir Humphry Rolleston replied, agreed with what he was pleased to term "my logical suggestion," and dealt with some of the difficulties attending the proposed procedure. I also advocated "tapping" in all cases where nervous symptoms were much accentuated, as likely to give relief—as it invariably did—by removing some infective material and reducing pressure and further absorption. The continuous drainage was to be controlled by a "gauge" to indicate normal pressure and to act automatically—of course under strictest antiseptic precautions. What at the time seemed perhaps a rather bold procedure and contrary to accepted methods was really quite logical, and merely the application of the old and immutable principle of "drainage" and relief of pressure, thus preventing further absorption and pressure damage.

In following "new" methods principles are apt to be obscured, but remain, and are without doubt the only real guide in difficult conditions. As Sir Cuthbert Wallace remarks in the same issue of the *Journal* (May 4th, 1935, p. 912), "if one tries to gauge the changes in surgery since the early days of the present century. I think it is true to say that the period is marked more by an improvement in methods already in use than by any outstanding innovation." I agree; the principles remain, though they may be temporarily obscured by "evanescent camouflage." In his conclusion Dr. Fairbrother remarks that the sporadic nature of poliomyelitis in England indicates that the majority of the adult population have acquired some immunity. Curiously enough, the same remark might be applied to the outbreak of cerebro-spinal meningitis already referred to; for on investigation about 2 per cent. of the population at that time were found to be carriers.—I am, etc.,

H. V. DREW, F.R.C.S.,
Late Surgical Specialist at Netley, and later in charge of the Surgical Division at Tidworth.

Christchurch, N.Z., July 18th.

Peritonsillar Abscess in Infancy

SIR,—With reference to Dr. Alex Maclean's article on this subject (*Journal*, August 10th, p. 254) the following may be of interest.

A boy, at whose birth I attended on June 14th, 1933, was brought to see me on March 24th, 1934, as the mother thought it possible he had mumps. There was very slight fullness round the angle of the left jaw, but no obvious adenitis, and the parotid gland seemed normal. The temperature was also normal. The most striking feature was that the child kept trying to clear his throat, as any older person might, to get rid of some irritation, such as a hair. I had never previously seen an infant act in this way. There was nothing abnormal in the appearance of the throat except for the presence of mucus, which was associated with a nasal catarrh. Though not quite satisfied with the diagnosis, I concluded the condition was a pharyngitis, causing irritation and probably giving rise to an adenitis. I prescribed nasal drops, and asked the mother to let me know if the condition did not clear up. At this stage the infant did not seem at all ill, and there was no embarrassment of breathing. On March 27th I received a rather urgent message to visit the child, as he was choking. Acute distress had suddenly developed in the previous few hours. The left side of the neck was markedly swollen, and it was obvious that breathing was seriously obstructed, though the sound was guttural rather than strident as in laryngeal croup. On examination the throat was seen to be almost closed by a bulging peritonsillar abscess of the left side. This I opened, and evacuated rather light yellow thin pus with immediate relief of breathing. Recovery was uneventful and the child has been well since.

In view of Dr. Maclean's search of the literature, some points of interest arise. (1) This child was only 9½ months old. (2) Had I sent him to hospital he would have arrived in Ruchill and probably have given Dr. Maclean three cases in one year instead of two. (3) If peritonsillar abscess in infancy is as rare as the literature suggests, it is surprising that there should be three cases within nine months in the part of Glasgow served by Ruchill Hospital. As most peritonsillar abscesses are dealt with by general practitioners, it seems possible from the above experience that periodically in some part of the country a general practitioner opens such an abscess in an infant, says to himself that this is rather interesting and that he must send a note to the *B.M.J.*, but having filled up "M.R.'s, M.R.E.'s, D.M.2A's," etc., decides he will write that note "to-morrow."

It would be of interest to hear from any who have come across the condition in infants or young children. Some years ago I opened an abscess in a girl of 5. Certainly I will keep a careful watch on the next infant I hear trying to clear his throat like an old man!—I am, etc.,

W. J. S. CAMERON.

Glasgow, Aug. 19th.

The Future of Psychotherapy

SIR,—In his admirable review in the *Journal* of June 15th (p. 1205) of the functions of psychotherapeutic clinics, I venture to suggest that Dr. Crichton-Miller has failed to appreciate the full significance of Dr. Mapother's remark that "the ancestors of the psychology of the future will be such investigators as Hughlings Jackson, Sherrington, Head, Pavlov, and Lashley." Dr. Miller hopes that our therapeutic resources "are not to be inspired by principles of cerebral localization." Surely it is not a vain hope that the reaction and personality types, which we now crudely distinguish in terms of general behaviour, will some day be correlated with cortical and subcortical responses. Indeed, Kretschmer, in his *Medical Psychology*, deals with this very question. Until we know more about the neurological basis of such conditions as suggestibility, fatigue, habit spasms, and hallucinations our treatment will continue to be guided by trial and error. It may be anticipated that with greater understanding of the mechanism of mind such methods as moral suasion, suggestion, re-education, and mental analysis will be employed less intuitively and more according to definite principles, being selected and applied with the precision of a worker in Pavlov's laboratory.

Dr. Mapother is admittedly looking far ahead, but is not the exclusiveness of the many schools of psychotherapy a plain admission of the unscientific choice and application of the different methods employed?—I am, etc.,

University of Sydney, July 23rd. W. S. DAWSON.

The Psychoneuroses and Medicine

SIR,—In an article which appeared in the *Journal of Mental Science* of October, 1934, on prolonged narcosis in mental disorder—somnifaine narcosis—by my friends Drs. Muriel L. M. McCowan and Ström-Olsen of the Cardiff Mental Hospital, reference is made to a matter which seems worthy of wider publicity in order that further experience may be gained. Incidentally, somnifaine narcosis has been made much safer by the glucose-insulin treatment in combination with somnifaine, introduced at Cardiff, where the medical staff have a particularly wide experience of the whole subject and the advantage of the support of a biochemical laboratory in which important work has been done by Dr. J. H. Quastel and Mr. A. H. M. Wheatley upon narcotics and brain oxidation.

The point in the article which I would like to draw wider attention to is this: it is stated, and from my reading I agree, that there are but few records in the literature of cases of psychoneurosis having been submitted to prolonged narcosis therapy. A small series is then recorded. The results "so much exceeded expectations" that the treatment is being tried at Cardiff in all suitable cases. Patients with anxiety states in particular showed "a very favourable response." Recovery followed "immediately on the cessation of treatment, even before psychotherapy had begun." In other words, cases of the psychoneuroses got well without "psychotherapy."

The prolonged narcosis method would appear to have the effrontery to challenge that of cure by talk. I apologize to my friends, but this expression seems to summarize truly, albeit starkly, the "suggestion, persuasion, explanation of the particular mechanism, and re-education on Adlerian lines" which, I gather, constitute "psychotherapy" as practised upon certain of their patients who perhaps did not enjoy the benefit of "free choice" between the mind-rustling procedure and that of prolonged narcosis. The latter treatment, they say, is a "departure from orthodox methods of psychiatry." I desire to retain their friendship, and so will accept their dictum. But not at all costs. Therefore I will say, *en revanche*, that the method of prolonged narcosis is a return to the orthodox methods of medicine, and indisputably demands the services of those with orthodox medical training. As such I welcome it, and express the hope that further experience with it, and with other methods of physical therapy which I look to see evolved through painstaking research, may draw the psychoneuroses progressively into the fold of orthodox medicine.—I am, etc.,

Hove, Aug. 23rd. EDWIN GOODALL.

Periventricular Epilepsy

SIR,—I thought psycho-diagnostics was the perquisite of Eddyism, Shamanism, and clairvoyance. It is comforting to know that orthodox science, even in the silly season, finds it can touch the anatomic spot in so airy yet confident a manner. It is a pity that so much pathological energy (typical of asylum research) should be wasted on so poor an exemplar of the syndrome. In the course of analysis these epileptic crises (with perverted blood chemistry and sphygmograph tracings, etc., as required) are commonplace, as are other physical symptoms such as pruritus ani, ulcers of lip, carbuncles of neck, polyuria, etc., all of which are resolved in no time by the psychological treatment itself.

On Adlerian principles it is understandable that a "weak" organ may find some compensatory redress in the course of a dream fantasy, but in Dr. Davie's case it is the organism itself. Operations are psychic traumata. Surely the dream (for what it is worth) is but the outcome of current anxieties at the well-meaning efforts of materialist investigators at the time (October, 1933)—the draining of the lumbar canal, the excision of purulent tonsils, withdrawing of blood for Wassermann, etc. The dream is coloured by the fact that its author is a doctor. Some epileptoids are anal-erotics. The rest of the interpretation is as fanciful as the corpora quadrigemina's derivation, and (as Dr. Blake foresees) with the same unconscious origin.—I am, etc.,

London, W.1, Aug. 26th. P. LIONEL GOITEIN.

Intrafundal Pituitrin in Uterine Haemorrhage

SIR,—The clinical memorandum by Dr. W. F. Rawson in the *Journal* of June 29th (p. 1317) at last gives some publicity to a safe method of stopping any and all haemorrhage from the empty uterus. The method is very simple and appears to be always reliable. I believe Dr. Rawson is correct in writing that up to the present it has found no place in the textbooks, although it must have been known to some gynaecologists, since it was published in the *Journal of Obstetrics and Gynaecology of the British Empire*, 1930, xxxvii, 4, 791.

From 1926 onwards I have injected pituitary extract into the uterine fundus through the anterior abdominal wall on many occasions and with uniform relief to all concerned with the patient. Experience seems to show that in post-abortum and post-partum haemorrhage the bleeding can be stopped within one quarter of a minute. The term "intrafundal injection," which was first used, is more accurate than intrauterine, which might include injections into the cervix by way of the vagina. For conscious patients an intracervical injection of pituitary extract may be painful, but an intrafundal injection does

not cause pain beyond that of an ordinary hypodermic puncture.

A flaccid uterus will respond to an intrafundal injection of pituitrin when it will not to the usual intramuscular. Whether the whole story is concerned merely with dosage seems to be a question which experiment might answer. Possibly a very large intramuscular dose of the oxytocic principle would have the same effect when, much diluted, it arrived by the uterine arteries. However, it seems more reasonable to apply the smaller dose to the site of the fault. I have not seen any ill effects. Involution proceeds normally with a natural discharge of lochia. I should like to add that the intrafundal injection of pituitrin has a use in the treatment of subinvolution of the uterus.

Dr. Rawson is quite right in saying that lives can be saved. I thought the method was so important that I pointed it out about three years ago to the representative of a firm of extract makers, but up to the present a description has not been added to the pituitrin leaflets.—I am, etc.,

Harrogate, Aug. 23rd. T. VIBERT PEARCE.

Persistent Headache during Lactation

SIR,—The interesting paper by Dr. Julius H. Beilby on headache during lactation, in the *Journal* of August 24th (p. 337), prompts me, with your courtesy, to report a similar case seen recently.

The patient, a woman aged 27, 2-para, was sent to me by her doctor for an examination of her eyes because of persistent headaches. Her history was that since the birth of her baby, which she was nursing, she had had a persistent headache and pain behind both eyes. Examination of the eye grounds was negative, her refractive error was practically *nil*, and muscle balance was normal. She volunteered the information that she had had a similar attack five years previously when her first baby was born, and it had cleared up when the child was weaned. She had at that time also been seen by an ophthalmic surgeon, and nothing abnormal was found. In contradistinction to Dr. Beilby's cases the condition had occurred after a first child and in a patient in excellent physical condition, whose social standing precludes any question of undernourishment.

I am, etc.,

London, W.1, Aug. 25th. A. J. CAMERON.

Treatment of Puerperal Streptococcal Septicaemia

SIR,—Dr. Robert A. Welsh (August 24th, p. 356) criticizes me in the sense of, Who is this small frog that bulls with so loud a voice when the giants themselves dispute? Even so. Yet the whole trend and implication of my letter was to the effect that puerperal septicaemia is essentially a problem for the general practitioner rather than for the specialist. It is the problem of the first two days of infection before a specialist is called in. He says: "I have practised midwifery for over forty years and seen only two deaths from septicaemia." I have myself practised for only twenty-two years; but eight years ago I used puerperal serum for the first time, since when—in the terms of a well-known advertisement—I have used none other.

No general practitioner can call up a long series of cases, and yet his findings are more valuable as to the use of serum than those of the specialist, who only sees his cases after the infection has become more virulently established. As Dr. Welsh does not use the serum, then upon what basis shall he assert his opinion? For he who denies dogmatizes, no less than he who asserts.

Dr. J. A. Noot queries my diagnosis in these cases. But if the temperature goes up on the third to the fifth day, and especially if there is a rigor and a too-quickening pulse, and perhaps changes in the lochia, and if the serum is given at once, and if the temperature falls away from that hour, what shall we say? Does not one so act with diphtheria, and, if one is wise, with lobar pneumonia, with similar results? I do assert that if the serum be given on suspicion then the problem of puerperal mortality will be largely solved. Let it become a routine in the profession and I am content to let the verdict lie in the experience of the men who do it.—I am, etc.,

Yardley, Aug. 24th. J. C. JONES.

SIR,—Dr. A. G. C. ffolliott of Liverpool (*Journal*, August 24th, p. 356) advocates that parturients should be Dick-tested during the last three months and the "positives" given anti-scarlatinal serum at the beginning of labour. This, to me, seems a sound proposition, and some of the larger local authorities dealing with maternity might give it a trial and report thereon.

I recently saw a case of puerperal septicaemia with two other doctors. The fact that the tongue and the face suggested scarlatina, though there was no rash, was mentioned at the time. Two days afterwards the child in the house developed typical scarlatina; there was very little of it in the town, and none in that area. Anti-scarlatinal serum failed to do any good in the puerperal case: she died. I wondered why the two infections almost coincided, and am interested to know if any doctor has met a combination like this in practice.—I am, etc.,

Clonmel, Ireland, Aug. 27th. M. NAUGHTEN, M.D.

Registration of Opticians

SIR,—In your issue of July 13th Mr. Vivian Metivier of Port of Spain takes it upon himself to act as spokesman for British opticians desiring to obtain registration. How far he may be entitled to do this I do not know, but he has quoted as evidence of general support the statement that in South Africa a Bill with the object of giving the opticians registration is to be passed. This is not correct, and is merely a bit of the propaganda which is being used by these persons to further their claims. So far a conference, at the instance of the Secretary for Public Health, has been held between representatives of ophthalmic surgeons and opticians. The claims of the latter will, however, have to be very materially diminished before any agreement can be come to, and failing this there will be a determined opposition to them by the South Africa Ophthalmological Society, and we hope it will be backed by the whole profession.

Briefly, the opticians wish to be allowed to examine for glasses all who come or are brought to them. They wish to be allowed to use instruments for diagnosis of disease, and they wish to be allowed to charge for their services. They concede the point not to use mydriatics, and this is really the only difference which will distinguish their work from that of the trained ophthalmic surgeon. We all appreciate the wish of the Health Department to get rid of the pest of travelling spectacle sellers, but surely this can be attained without taking away by law what is the rightful heritage of the ophthalmic surgeon. Even if a register is made it will not get rid of the difficulty of providing proper glasses in remote districts where there is not even a chemist.

The proper and only fair way is to encourage medical students before and after qualification to learn simple refraction work, so that, apart from out-of-the-way conditions, they may be in a position to help their patients when required. This will be far more to the advantage of the public than to delude it into the belief that the "optometrist" is the person who can best deal with optical difficulties because he does nothing else. I shall not further waste your valuable space, save to refute, as I have done, the statement that an Opticians Bill for South Africa is a *fait accompli*. We are not yet dragged by the heels by a Labour Government as in the case of New South Wales, whose Opticians Bill is hailed as the perfection of legislation.—I am, etc.,

Capetown, Aug. 9th. OPHTHALMIC SURGEON.

Rat-bite Fever

SIR,—I have read with interest Dr. E. Graham Elwell's account of a case of rat-bite fever in your issue of August 17th. A similar case has come under my notice recently, and may be worthy of mention.

The patient, a farmer, was "ratting" with a ferret, which had seized a rat. On attempting to remove the ferret from the rat he was bitten by the ferret on the thumb. Five days later I was consulted. Except for an old adenomatous goitre, which had never troubled him, he had always been healthy. The thumb presented a small punctured wound near the base of the nail. There were no signs of virulent sepsis, and boric fomentations were ordered.

Three days later I was called to see him. The thumb was swollen and the nail loosened. The latter was removed. There was very little pus present; the discharge was scanty in amount and serous in character. His temperature was 99° F., and he complained of a feeling of general listlessness and severe frontal headache. On the twelfth day the temperature rose to 103°, and fell back to 99° the next day. The headache became increasingly troublesome, and showed a marked periodicity, recurring daily at noon. Nasal sinusitis was suspected, but no evidence of it was found. On the fifteenth day an erythematous eruption scattered about all over the body appeared. It was dusky red in colour, and on the face it assumed a nodular form.

On the seventeenth day the temperature was 103° again; on the following day it reached 104°, and was accompanied by a rigor. The next day he was delirious; his pulse rate was 100 per minute and grossly irregular; there was a slight glycosuria and the temperature was still raised. The wound now looked angry, with a sanious discharge; there was no lymphangitis, but a few small shotty glands were palpable in the axilla. An intravenous injection of 0.3 gram novarsenobillon was given, and on the succeeding day the temperature fell through 7.4° to 96.8°. The rash cleared; the headache disappeared; and, although the patient was much debilitated, he caused no anxiety for the next twelve days. The wound settled down, but never healed completely; the glycosuria cleared up, and his temperature remained consistently subnormal at about 97°.

On the thirty-second day of his illness a recrudescence occurred; the rash reappeared; the thumb again became œdematous, and the wound active. His temperature this time rose to 101.2°, with a pulse rate of 90 per minute. The opposite hand became very swollen, apparently by an infiltration in the interossei. Novarsenobillon, 0.6 gram, was given intravenously, with the result that the condition has cleared up completely, and he has made an uninterrupted recovery.

A blood culture gave a negative result. Dr. A. F. Sladden of Swansea kindly examined blood films and reported that there was no leucocytosis and that polymorphs were 80 per cent.; no spirochaetes were found.

The history of the case, the symptomatology, the relapsing pyrexia, and the response to novarsenobillon treatment, favour a diagnosis of rat-bite fever.

It is of interest to note that Berk, Theiler, and Clay of Boston (*Medical Annual*, 1928) proposed to treat dementia paralytica by intravenous rat-bite or sokodu inoculations, and claimed several advantages for it over malarial therapy.—I am, etc.,

S. G. BUDD, M.R.C.S., L.R.C.P.

Newcastle Emlyn, Aug. 21st.

Histidine Treatment of Peptic Ulcer

SIR,—In view of the article by Dr. David Smith in the *Journal* of July 27th (p. 154), I think that the following case, as an example of histidine treatment in general practice, will not be without interest.

On January 13th, 1935, I was consulted by a solicitor, aged 49. He had all the signs and symptoms typical of a duodenal ulcer, and was placed on the appropriate dietetic and alkaline treatment. He was away from business a little over three weeks, the opportunity being taken to excise some external haemorrhoids. He returned to business, remaining on a strict diet, with alkaline powder. On July 18th and 19th he was *x*-rayed, being by this time free from pain, but still markedly tender in the epigastrium. The report stated that there was a small ulcer present on the anterior wall of the duodenum, which was non-obstructive and gave no deformity of the duodenum. I commenced daily injections of 5 c.cm. "Roche" larostidin on July 31st. At his own request he remained on diet, but discontinued the alkaline powder. Within ten days all tenderness had disappeared and the patient was symptomless. He carried on with his work and played tennis regularly during the treatment, experiencing no inconvenience from the injections, which were given subcutaneously into the back. After twenty-one injections I ceased the treatment, and he was *x*-rayed again on August 21st. The report states that a large number of films were taken in different directions, but there was no positive evidence of an ulcer crater.

While I am quite aware that an isolated case is of little worth in assessing the value of a treatment, I think that the remarkable improvement in the month between the *x*-ray reports cannot be attributed to any factor other than the histidine treatment, especially considering the fact that the ulcer was still present after seven months of strict dietetic treatment. From the point of view of the general practitioner the treatment is simplicity itself, and from the patient's point of view it is comparatively cheap, the only inconvenience being attendance at the surgery daily for three weeks—which is infinitely preferable to citrated milk and pulv. alk. co. I propose to give larostidin monthly, to prevent recurrence, in the above case.—I am, etc.,

J. J. CRAIG, L.R.C.P. & S.Ed.

Alderley Edge, Cheshire, Aug. 23rd.

Shifting Sands of the Architecture of Medicine

SIR,—The thoughtful medical practitioner reading letters under this title is inclined to sympathize with those who have studied homœopathy and found it practical when that subject is criticized by those whose understanding of it is expressed by the statement that it is simply a system of "like curing like." Medicine is, or should be, catholic in its selection of means to effect its object of preventing or curing disease, and no man should be condemned when he believes in certain "laws" and applies them in practice.

But what the general practitioner rightly objects to is the unfair use made of such belief. The believer in homœopathy may legitimately introduce it into his professional technique, but he should not advertise the fact as a special qualification if he be a duly registered practitioner and practises routine methods in surgery and midwifery like any other practitioner. He may bring in the subject for discussion or consultation in the same way as

he may discuss the merits or demerits of alkaloids in the treatment of rheumatism. But if it be legitimate or "regular" for him to style himself "homoeopathic physician," it would be equally legitimate for a general practitioner who had studied and believed in the merits of psychology in the treatment of physical diseases to style himself "psychotherapeutical physician." One should quarrel, not with any man who practised homoeopathic principles *qua* homoeopathy, but with him who emphasized that principle in a general practice to the detriment of the "ordinary" practitioner, to whom the introduction of "superior" or "mysterious" methods in any description of himself or his profession would be anathema.

The same remarks apply to any big hospital where medicine, surgery, gynaecology, obstetrics, and other special branches of medicine are practised. What a shock it would be if one of our famous London hospitals "supported by voluntary contributions" prefaced its title with the word "allopathic"!—I am, etc.,

Folkestone, Aug. 24th. G. FRANCIS SMITH.

Views on the Cancer Problem

SIR,—I regret to observe the note struck by Professor Blair-Bell (*Journal*, August 17th, p. 315) in his remarks on this subject in replying to Mr. A. C. B. Biggs. Such remarks are, even if truthfully stated, nevertheless crushing to those perhaps a little less versed in the subject than he. I myself favour Cohnheim's theory of embryonic residues, coupled with the continuous action of mild irritants, direct or indirect. I include injuries as irritants, as an injury is very often the exciting factor in the occurrence of cancer. The action of grease in mule-spinner's cancer is also a well-known instance. Possibly the exciting factor may cause the liberation of an irritant in the tissues, which may in its turn give rise to the excessive proliferation of the cells, resulting in cancerous tissue. This I would define as the indirect action of an irritant, and it coincides, in my opinion, with the suggestion in Mr. Biggs's letter. I should welcome further discussion of the subject.—I am, etc.,

Exeter, Aug. 28th. H. V. CRABTREE, M.B., Ch.B.

SIR,—I note with interest that the letter of Mr. A. C. B. Biggs in the *Journal* of August 10th, in which the view was stated of malignant disease "as one of uncontrolled growth of cells, with a reversion back towards the primitive type," drew a reply from Professor Blair-Bell in the issue of August 17th to the effect that this view was not only the working hypothesis of his colleagues (of whom for a short period I was one, but was unable to agree with the hypothesis) and himself, but that a large amount of scientific work had been done by them in relation thereto.

In many of Professor Blair-Bell's writings this supposed reversion towards a primitive type of cell is referred to the embryonal type and, in the limit, to that of the trophoblastic. In the latter part of Mr. Biggs's letter it is evident that the trophoblastic type—the chorionic epithelium type—is similarly in mind. It seems to me necessary, therefore, to point out that no such relationship exists between the embryonal and the trophoblastic types of cells; indeed, the cells (or syncytium) of the trophoblast do not arise from, and are not of the same nature as, the cells of the embryo. The trophoblast, as has been completely demonstrated by many authors during the last thirty years—especially by the embryologists Hubrecht and Beard—is the first product of the segmentation of the fertilized ovum, and is formed and often manifests a certain degree of differentiation for the performance of its many important but little recognized functions long—comparatively—before there is any sign of an embryo, and in some mammals before the so-called "germinal layers" have appeared, or even an embryonic knob, and in some, when this "knob" is still represented by a single cell or small group of cells only. If follows from this that to define the chorion-epithelioma of pregnancy, which is so evidently a malignant growth of the trophoblast, as an *ectodermal* chorion-epithelioma, having origin from the foetal (embryonal) ectoderm, is no longer possible; and that the question set by Mr. Biggs—"What is it that controls the activity of the chorionic epithelium after the implantation of the fertilized ovum in the uterus is completed?"—has no point in this relationship—unless, of course, cancer occurring at other sites has a somewhat similar origin and mode of growth.

The term "reversion," so often employed in explanation of the origin of a cancer cell from a *single normal somatic* cell, has been borrowed from the principles of heredity of *entire* living beings, and has been unwarrantably applied to *individual* cells to account for the supposed peculiar characteristic of cancer formations—the power of unlimited growth and multiplication of their cellular elements, which multiply by division in such a way that the products of division are ever again and again able to divide. This acquired and lasting property of the cellular elements of cancer tissue, which is "inherited" by their progeny, is also thought to endow them with power to break down all natural limits, to overstep all the boundaries of normal tissues and organs, and to break through into the blood and lymph vessels; and having once been thus transported they are said to be able to unfold the same powers of unlimited growth at the place of their deposition! Thus the tumour cells are thought to have become entirely different from normal somatic cells, and to have initiated a new cell race with parasitic properties, biologically and morphologically quite "foreign" to the adult organism!

"Now, even the keenest scientific examinations have failed to solve the question why in an apparently normal healthy body quite suddenly there become active, cell potencies of remarkable extent and duration; and when one realizes the physiological processes in cell formation and cell growth occurring in our bodies, it must always remain incomprehensible how indeed anyone could have come to see the primary cause of cancer formation in a biologically different disease change in cell nature without having been able to find morphological proof of such a change." (Bostroem, 1928.)

There is absolutely no evidence that such a change occurs, and transitional stages between normal cells and cancer cells have never been convincingly demonstrated; so that one is driven to the conclusion that such "reversions" and changes do not occur. Evidence based on observed facts is gradually accumulating in support of this conclusion.

The results of histological study of sections prepared in this laboratory during the last six years or more from several hundreds of cancer specimens (chiefly of the breast and intestine), which were fixed within a few minutes after removal by operation, and of many mouse carcinomata—spontaneous and transplanted—have confirmed the finding of Herzog (*Klin. Woch.*, 1923, xv, 684); of Müller (*Virchows Archiv f. Path. Anat.*, 1928, cclxix, 105); and more particularly of Bostroem (*Der Krebs des Menschen*, Leipzig, 1928), who dealt chiefly with cancers of the skin and mucous membranes. They demonstrate the development of cells from and out of an indifferent "formative" mesenchymal tissue of a malignant type (recognized by Virchow in 1850 and regarded by him as a kind of "granulation tissue") through various transitional forms towards cell forms which tend to become differentiated for the purpose of performing special

functions (which, however, are generally incapable of execution)—in fact, normal forms. Nuclear mitosis, occurring not more than twice, is the outward visible sign of this approaching differentiation, and is not in my opinion an indication of rapid progressive multiplication of cancer cells, as has been commonly supposed (Monograph on the Significance of Mitotis in Somatic Cells, Annett, 1934).

Now it is a well-established biological fact that cells of the adult organism which have been differentiated to perform a special function have lost their power of division. "A cell which divides mitotically does not function; a cell which functions does not divide mitotically" (Peters). "Death is the penalty which has to be paid for cell differentiation" (Ernst). "Differentiation to functioning cells is the end of development, further division is impossible" (Benninghof). It is particularly at the growing edge of squamous-celled epitheliomata and in the fatty tissues about a growing border of a breast cancer that the phenomena referred to can be most easily demonstrated; and in both cases it can be seen that extension of the cancer takes place by the formation of multiple new foci, at various distances from the edge, in the more or less normal tissues, which eventually become added on to, and confluent with, the older cancer tissue (Virchow's process of accretion, *Anwuchs*). From my own observations it appears that degeneration and death of these cancer cells may occur at any stage in the course of development from the "indifferent" tissue to the more or less fully differentiated forms, with a rapidity depending upon the local conditions at the spot, and possibly on general constitutional resistance. Usually the greater the number of more or less completely differentiated cell forms present the less malignant that portion of the tumour is. But in one and the same tumour it is common to find groups of cells in different stages of development, of differentiation, and of degeneration.

In this relationship the suggestion by Dr. Harkness, in his letter in the *Journal* of August 17th (p. 316), that the successful treatment of cancer may be dependent "on the study of the hormone-like substances which take part in the differentiation of tissues" may prove valuable.—I am, etc.,

Turner Research Laboratory, University of Liverpool, Aug. 27th. H. E. ANNETT.

Obituary

GEORGE HERBERT MORRISON, M.B., CH.B.

Dr. G. H. Morrison, who died at the age of 40 in Edinburgh on August 23rd, as the result of a motor-bus accident two days previously, was a son (his only brother was killed in the war) of the late Dr. Morrison of the Wellington Church, Glasgow, and was born in Glasgow in 1898. He was educated at Glasgow Academy, and as a boy of 18 was studying German in Berlin when war broke out; he was interned at Ruhleben camp—four years which at an impressionable age left a permanent mark upon him. He made good use of his time there, however, by learning to write and speak German as fluently as English.

After the war Dr. Morrison studied medicine at Edinburgh University, and graduated M.B., Ch.B. in 1923. He was well known at Edinburgh in the Union and the Royal Medical Society, and especially as editor of the *Student*, the undergraduate weekly. On graduating in 1923 he joined the editorial staff of the *Lancet* for two years: he resigned to become in succession house-physician and house-surgeon at the National Temperance Hospital, and he also had some experience of general practice. Dr. Morrison was then offered, chiefly because of his knowledge of German, the appointment of medical adviser to Bayer Products, Ltd., for whom he edited *Clinical Excerpts*. Dr. Morrison insisted on maintaining an independent position as a liaison officer between commerce and medicine, and the value of this independence and of his high reputation with the leaders of the medical profession in Britain were in time recognized by his firm. He was able to persuade them, for example, when they were about to put the new German anaesthetics, avertin and evipan, upon the English market, not to do so until they had been fully tried out and publicly reported upon by representative British anaesthetists.

Dr. Morrison had a well-deserved reputation as a wit and a maker of pungent and amusing phrases; his verses were published in *Country Life* and other periodicals; he was the founder of the King James VI Society, a flourishing dining club of Scottish university men; and he was an office-bearer in the University of Edinburgh Masonic Lodge in London. He was a member of the British Medical Association and a Fellow of the Royal Society of Medicine. His tragic death at an early age has taken a unique personality from medical circles in London. He leaves a widow and a young son.

Professor R. J. S. MCDOWALL writes:

The tragic death by accident of Dr. G. H. Morrison while on holiday removes for many of the younger Edinburgh men one of the great figures of the post-war days, for few had so many friends and enjoyed to such a measure the esteem of his fellows. It can safely be said that he was one of the small band who resuscitated student life in Edinburgh after the war. At the Union and as editor of the *Student* he surrounded himself with a small group of intellectuals who were possessed not only of high intellectual attainments, but also of a proper sense of values and great good humour.

Morrison's own experience of war had taught him much. He chanced to be cycling in Germany in August, 1914, and, suspected of being a spy, he was twice sentenced to be shot. By some quite trivial accident the sentence was not carried out on the first occasion; the second sentence was fortunately quashed, but he spent the remainder of the war in prison. There can be no doubt that he never really recovered from his experiences, and that he had a subconscious desire for escape. It was indeed a strange irony of fate which led him to become the chief medical adviser in this country of Bayers, the great German chemists, and the directors have ever been conscious of what they owe to his work, for he had a unique power of collecting information of value to his firm. But it is as "George Herbert," the delight of any debate or "smoker," that we shall remember him. In recent years he founded a light debating club to bring together Scots "exiled" in London, and with his whimsical humour called it, after "our most illustrious exile," the "James Sixth Society." It meets from time to time in City taverns, and is always a joyous evening where men in responsible positions in medicine, law, and politics find themselves back in the atmosphere of student days. The speech of the evening was invariably that of George Herbert, and many of us will cherish a turn of phrase that was his. How often we thought that here amongst us was a real genius worthy of ranking with those of the past. We always considered it a pity that he could not be persuaded to put his thoughts on more permanent record, but to those of us who heard him they will always bring happy memories.

THE LATE PROFESSOR JOHN ANDERSON

We have received the following appreciation from Mr. G. GORDON-TAYLOR:

The death of Professor John Anderson of St. Andrews University and Dundee has robbed British surgery of an able surgeon and a charming personality. I first knew Jack Anderson as one of a band of young surgeons, many of them from across the Tweed, whom Sir Henry Gray had collected round him in the Third Army during the war; but while all were superlatively efficient, while all were devotedly enthusiastic on behalf of those entrusted to their care, Jack Anderson was perhaps the outstanding figure, the magnetic personality of the group. In those days he was "Jack," perhaps even "Jock," Anderson, long before the dignity of a professorship of surgery in a Scottish university had fallen on his shoulders; but that same consideration, that same unwearying patience, that tireless toil, that self-sacrifice which twenty years ago he displayed on behalf of the wounded in the "casualty clearing zone" ever characterized his work throughout his subsequent career. Among the operators at the "back of the front" I should have unhesitatingly ranked him in the foremost trio.

Till the time of his death he retained a peculiar interest in all who had served abroad, and especially in such as had suffered in the war. It may be well that death cut short his illness, for Jack Anderson was not one who could have endured that considerations of health should ever impose their decree upon his surgical thrust. While his professional career was spent in the eastern counties of Scotland, his appearance, his manner of speech, his charm, his Highland courtesy, his genial hospitality, bewrayed an origin from beyond the Grampians. He leaves behind him the memory of a great surgeon who loved his profession, who loved life, who loved his land, and who lived every minute of the day; he compelled respect, admiration, and affection. Such were the thoughts of the many hundreds who came, unbidden, some from long distances, to stand round his grave on the hillside looking southward towards the sun across the Firth of Tay.

Dr. E. P. CUMBERBATCH writes:

In the obituary notice of Professor John Anderson, published in your issue of August 24th, there is merely a passing reference to his electro-surgical work.

It should be realized that he was much more than the protagonist in this country of the use of the cutting current in surgery. He developed a method much in advance of the crude procedure practised on the Continent. It is not too much to say that he was an independent founder of a new surgical method. It is true that George Austin Wyeth elaborated a similar method and published an account of it in 1924. But John Anderson's work was contemporaneous with that of the distinguished New York surgeon and quite independent of it.

John Anderson's personal charm, his ability, and his zealous devotion to surgery were known to his friends and admirers at home and abroad, but his pioneer work in the "new surgery" should ensure the inscription of his name on the annals of surgical history.

Dr. BASIL TEMPLE UTLEY, a member of the Fiji Branch of the British Medical Association, died of septicaemia on April 2nd, after a gallant fight of over a week's duration following a pricked finger wound received in the course of his professional duties. Dr. Utley was born in London, in King's Bench Walk, Temple, on June 10th, 1895, and was the son of the late William Herbert Utley. After attending a preparatory school in London, his education was continued in Switzerland. He took much interest in Swiss sports and was a proficient fencer. In 1913 he entered Trinity Hall, Cambridge, expecting to read for History Honours. On the outbreak of war he enlisted in the London Fusiliers, and afterwards received a commission in the 4th Connaught Rangers. He saw service in France and was wounded, convalesced in England, and was then drafted to Mesopotamia. He was later transferred to France, and was gassed at Le Cateau in 1918. After the war he studied journalism at London University, and later attended St. George's Hospital Medical School, qualifying M.R.C.S., L.R.C.P. in 1928. He held house appointments at the Metropolitan Hospital, and later was on the staff at Colney Hatch. His service during the war had affected his health, and in 1930 he left England in an 18-ton yawl, the *Inyala*, for the South Seas. He had for years been an ardent lover of sailing and had sailed to Norway, but a transatlantic crossing was a new experience. He sailed the *Inyala* to Spain, the Canaries, the West Indies, and eventually reached the Pacific via Panama. The Galapagos, the Marquesas, and Tahiti were well known to him before he finally reached Fiji. In Fiji he worked in partnership with another St. George's man, Dr. I. Hamilton, and he gained a reputation as a conscientious and hard-working physician.

Dr. T. Clunie, honorary secretary of the Fiji Branch, writes: Wherever he went this man was liked. He had the faculty of adapting himself to his surroundings. Utley married while in Tahiti, Emily Lovell Caulfield Phillips. Our sympathy goes out to his widow and to his aged mother in England. I heard words read over his grave, and they seemed to me to aptly apply to this child of nature. They were taken from Dostoyevsky. —*The Brothers Karamazov.* "Here is perhaps the one man in the world whom you might leave alone without a penny, in the centre of an unknown town of a million inhabitants, and he would not come to harm, he would not die of cold or hunger, for he would be fed and sheltered at once; and if he were not, he would find a shelter for himself, and it would cost him no effort or humiliation. And to shelter him would be no burden, but, on the contrary, would probably be looked on as a pleasure."

We regret to announce the sudden death on August 15th, in his seventy-third year, of Dr. JOSEPH ROBINSON, who for close on thirty years was a well-known practitioner in Chelsea. He took the diploma of L.R.C.P.I. in 1885, following this with the L.R.F.P.S.Glas. In 1912 he obtained the D.P.H. of the Irish Colleges, having graduated M.D.Durham in the previous year. He had held a commission in the R.A.M.C.(T.) for over forty years, retiring with the rank of major. In his early life he was a prominent Freemason. A man of outstanding personality and ability, Dr. Robinson had a profound knowledge of his fellow men, and this characteristic carried him forward in a successful career. His whole life was devoted to medicine, and up to the time of his retirement two years ago his work made very strenuous demands on him. A memorial service was held at St. John's Church, Chelsea, followed by a cremation at Golders Green on August 17th. He leaves a widow.

We regret to announce the recent death, at Zurich, of Dr. OTTO AMREIN, who had long practised in Arosa, and who for many years had taken a prominent part in its social, medical, and municipal life. He was in his sixty-first year and had been in his usual good health, when, on August 2nd, he was suddenly seized with a heart attack, associated with coronary anorexia, which rapidly proved fatal. Dr. Amrein, while born in Switzerland, was not a native of Arosa, although he was later made a "burgher" of that town in recognition of his work on its behalf. As a lad, however, he had spent his holidays in the district, and had learnt to love the beauties of the "jewel of the Alps." In 1900, shortly after qualification, he settled down in practice in Arosa,

and at once began to take an active interest in the affairs of the community, holding various municipal offices. He was one of the leaders in advocating the policy which led to the conversion of the little Swiss village into a well-known health resort. He rapidly acquired an extensive practice, and under his kindly and skilful care many sufferers from pulmonary tuberculosis from England and other countries were enabled to regain their health. To those patients—treated in earlier years in the hotels, and of late more often in the large Altein Sanatorium, which he was instrumental in erecting (it was opened in 1914)—Otto Amrein was unremitting in his attention, and his name and memory will be held by them in grateful recollection. Dr. Amrein, who was also a good musician—a pupil of Joachim—and a great traveller, leaves a widow and one son, for whom in their bereavement deep sympathy will be felt.

We regret to announce the death, on August 25th, of Dr. G. G. MACDONALD. Dr. Macdonald came of Highland stock, though he was born in London. Returning to Scotland as a boy, he received his education in Inverness and at Glasgow University, where he qualified M.B., C.M. in 1889, taking his M.D. degree at about the same time. Later he settled in general practice in the Crich district of Derbyshire, where he remained for the greater part of his life. A practitioner of the highest integrity, with a personality which endeared him to many, he had a wide range of interests and touched life at many points. He was greatly interested in national insurance, and worked hard on the Derbyshire Insurance and Panel Committees; the county council and the magisterial bench also claimed his attention. His services both in public and in private showed that Scottish shrewdness and level-headedness which made them invaluable. His advice was sought by all and sundry, and his life was one of devotion to the well-being of his patients and to the execution of those duties which are a necessity for the public good. His district and innumerable friends have lost a good man, who was always ready with advice and was not afraid to tell the truth. In manner he was very quiet, and was more of a listener than a talker.

We regret to record the death, on August 11th at Molteno (Cape Province), of Dr. Paul J. van Coller, O.B.E. Born in 1873 in Hope Town, Cape Province, Dr. van Coller was educated at the South African College in Cape-town, later qualifying in Edinburgh (L.R.C.P., L.R.C.S.) in 1899. Shortly after this he returned to South Africa and settled in the Transvaal. At the outbreak of the Boer War he served as medical officer for the Boer forces, and later took up practice at Molteno in South-West Africa. During the Great War his services were again called upon, and he acted in the South African Medical Corps as officer commanding the 3rd Mounted Brigade Field Ambulance. He was also O.C. No. 1 General Hospital, Wynberg, and was twice mentioned in dispatches. In 1923 he returned to Molteno, and during the past few years held the appointments of R.M.O. and M.O.H. in this town. He was at one time senior medical officer of the Potchefstroom cantonment, and was a member of the Queenstown Division of the B.M.A. Recently Dr. van Coller had interested himself in hypnotic treatment.

The following well-known foreign medical men have recently died: Dr. TRAVERSIER, professor at the medical school of Grenoble; Dr. ANTONI GLUZINKI, professor of pathology at Warsaw; Professor GIOVANNI TRUFFI, dean of the royal university of Padua and an eminent dermatologist; Dr. JOHANN HABERMANN, emeritus professor of oto-rhino-laryngology at Graz, aged 86; Dr. H. EMDE, professor of pharmaceutical chemistry at Königsberg; Professor LYDIA RABINOWITSCH-KEMPNER, formerly co-editor of the *Zeitschrift für Tuberkulose*, aged 64; and Lieut.-General Dr. PAUL DERACHE, honorary Inspector-General of the Health Service of the Belgian Army.

Universities and Colleges

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—H. N. Davis, H. Firman, N. R. James, E. E. Le Feuvre, R. A. McMillan, F. R. Neubert, S. E. Osborne, J. E. G. Wright.

MEDICINE.—E. L. Burgess, J. A. Carter, E. M. Craggs, H. Firman, R. G. Joyce, H. N. Levitt, F. R. Neubert.

FORENSIC MEDICINE.—E. M. Craggs, H. Firman, H. W. John, F. R. Neubert.

MIDWIFERY.—H. N. Davis, J. E. Garson, A. Morgan, M. A. Partridge, S. Roberts.

The diploma of the Society has been granted to E. L. Burgess, J. A. Carter, H. N. Davis, J. E. Garson, R. G. Joyce, H. N. Levitt, S. E. Osborne, S. Roberts, and J. E. G. Wright.

Medico-Legal

DEATH IN MATERNITY HOSPITAL FOLLOWING OPERATION

An inquest was held at Southport on August 21st and 26th by Sir Samuel Brighouse, coroner, on the death of a Mrs. Barton, which took place at the Christiana Hartley Maternity Hospital, a municipal institution, following an operation for retained placenta. It was stated that Mrs. Barton gave birth to a child at the home of a certified midwife, where she was attended by Dr. Bruce of Southport, and by his orders was removed by private ambulance to the maternity hospital five hours after confinement. Within an hour of admission she collapsed; restoratives were applied, and were successful, and two hours later an operation was performed by Dr. Laurence, surgeon-in-charge, for retained placenta, but she died almost immediately. The midwife in whose house the confinement took place said that she accompanied the patient in the ambulance to the hospital, and at that time she showed no evidence of shock. Sister Graham of the hospital, to whom it was suggested by the coroner that the three-mile journey was responsible for the collapse, said that the patient was certainly not in a critical state on arrival.

On ascertaining that chloroform was used as the anaesthetic, the coroner quoted the experience of certain clinics and surgical units that chloroform was a dangerous anaesthetic, and suggested that it was specially dangerous in this case, when the woman was already suffering from shock. Dr. Laurence said that chloroform rather than chloroform and ether was used in such cases, because they were very subject to haemorrhage following operation, and ether increased this tendency. He thought the statements from other clinics quoted by the coroner referred to ordinary surgical cases and not to maternity cases. He found this patient in an extremely shocked condition, but she revived under restorative measures. He agreed that removal in the ambulance might have been one factor in shock production.

Dr. Bruce, the doctor in charge of the case, said that he thought it would have been extremely foolish to attempt the operation in the house of the midwife, which was an ordinary house, not a nursing home. He did not believe that removal in the ambulance was prejudicial, and he would have been prepared to send the patient to Manchester if nearer accommodation could not have been found. Dr. A. M. Ferrie, who made the post-mortem examination, said that the manual operation for removal of the placenta was perfectly carried out. Shock following child-birth was a well-recognized clinical condition of great seriousness, and in this case it would be aggravated by the retained placenta. He agreed that the journey in the ambulance might have had some effect. He considered chloroform a safe anaesthetic for ordinary midwifery.

The coroner found that deceased died from shock following an operation for the removal of adherent placenta. The journey in the ambulance might have contributed to the shock, but on the medical evidence such removal appeared to be necessary in view of the lack of facilities for operation in the house where confinement took place. As to the use of chloroform in such cases, this was a matter of divergent opinions, all honestly expressed. In the face of such divergence he himself had no right to express his own views. No neglect whatever had been shown on the part of any of the medical men concerned in the case.

Medical News

Sir Thomas Barlow celebrated his ninetieth birthday at his house at Wendover, Bucks, on September 4th. He has made a gift to the village of a five-acre recreation ground and special playgrounds, which will shortly be available for the children.

The Fellowship of Medicine (1, Wimpole Street, W.) announces the following courses: medicine and surgery, at Westminster Hospital, September 16th to 28th; chest diseases, at Brompton Hospital, September 23rd to 28th; ophthalmology, at Royal Westminster Ophthalmic Hospital, September 28th and 29th; proctology, at Gordon Hospital, September 30th to October 5th; dermatology, at St. John's Hospital, September 30th to October 31st; interpretation of *x* rays, at Medical Society of London, September 30th to October 4th, at 5 p.m. Advanced courses, especially suitable for M.R.C.P. and M.D. candidates, are as follows: heart and lungs, at Royal Chest Hospital, on Monday, Wednesday, and Friday evenings at 8 p.m., from September 9th to 27th; clinical and pathological course, at National Temperance Hospital, on Tuesday and Thursday evenings, at 8 p.m., from September 10th to 26th; chest diseases, at Brompton Hospital, twice weekly at 5 p.m., from September 10th to October 4th. Other forthcoming courses include anatomy and physiology for the primary F.R.C.S., at Infants Hospital, on Monday, Wednesday, and Friday evenings at 8 p.m., from October 7th to November 29th; lectures on endocrinology, at National Temperance Hospital, on Tuesdays and Thursdays, at 8.30 p.m., from October 8th to 24th; lectures on gynaecology, at Medical Society of London, once weekly, at 4 p.m., from October 10th to November 7th; fevers, at Park Hospital, October 5th and 6th. Detailed syllabuses can be obtained from the Fellowship. Courses and lectures are open only to members.

The annual congress of the Chartered Society of Massage and Medical Gymnastics will be held from September 18th to 21st, and all lectures and demonstrations will be given at the Spa Rooms, Harrogate. Registered medical practitioners will be admitted free of charge to the lectures and demonstrations, for which a card of admission may be obtained from the offices of the society, Tavistock House (North), Tavistock Square, W.C.1. The following lectures are included in the programme: "The Spa Treatment of Rheumatism," by Mr. Wilfred Edgecombe; "Some American Orthopaedic Clinics and their Treatment of Hips and Spines," by Mr. R. Broomhead; "Functional Disorders and Malingering," by Dr. F. W. Eurich; "Some Points in the Diagnosis and Treatment of Fibrositis," by Dr. W. H. Maxwell Telling; "Short-wave Therapy," by Dr. W. J. Turrell; "Bone Regeneration," by Mr. C. Gordon Irwin; and "The More Recent Surgical Developments in Connexion with the Sympathetic Nervous System and their Immediate Bearing upon Massage," by Mr. Basil Hughes. On Friday, September 20th, at 4.30 p.m., Professor H. H. Woollard will deliver the Founders' Lecture, on "Nerves and Vessels of the Skin," and at 7.30 p.m. on the same day the annual dinner of the society will be held at the Grand Hotel, Harrogate.

A congress of the Association pour la Documentation Photographique et Cinématographique dans les Sciences will be held in Paris from October 4th to 11th. It is hoped to exhibit radiocinematographic films of organs synchronized with the sounds produced by them, scientific films in direct colour, and other novelties. Further information may be obtained from Dr. C. Claoué, Rue Scheffer 39, Paris, XVI.

International medical post-graduate courses will be held in Berlin this autumn as follows: in diseases of the throat, nose, and ear, September 30th to October 12th; in infectious diseases, September 30th to October 5th; in internal medicine from the point of view of functional pathology and therapy, October 7th to 19th; in the biology of heredity and racial purity in medical practice, October 7th to 12th; in tuberculosis, October 21st to 26th; in the surgery of intrathoracic diseases with special reference to pulmonary tuberculosis, October 28th to November 1st; and in monthly periods in all branches of medicine, with special clinical and laboratory work. Programmes and further information about railway and other facilities can be obtained from the Geschäftsstelle der Berliner Akademie für Ärztliche Fortbildung, Robert-Koch-Platz 7, Berlin, N.W.7.

The first congress of the Societas Oto-rhino-laryngologica Latina will be held at Brussels from September 20th to 23rd, under the presidency of Dr. Buys of Brussels. The subject for discussion will be cerebral abscesses in oto-rhino-laryngology. The fee is 100 French francs. Further information can be obtained from Dr. Vues, 5, Rue de Livourne, Brussels.

The issue of *Paris Médical* of August 3rd is devoted to the history of the Hôpital de la Charité, Paris, which was founded in 1608.

The King has appointed Dr. Alexander Montgomery Wilson Rae to be a Member of the Executive Council of the Gambia and an official Member of the Legislative Council of that Colony.

Dr. Alexandre Guéniot, who died in Paris on July 18th last, was born on November 8th, 1832. Dr. Griffith Evans of Bangor, North Wales, who was born on August 7th, 1835, is happily still with us. The medical profession of Japan also hopes to celebrate soon the hundredth birthday of one of its honoured members, Dr. Hikomasa Sasagawa, who was born on March 18th, 1836.

A Drinker apparatus has been installed at Monsall Hospital, Manchester's isolation hospital, for cases in which there is paralysis of the diaphragm in diphtheria.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

The **TELEGRAPHIC ADDRESSES** are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Analgesia for Suturing Cuts

"G. P." writes: With reference to analgesia for suturing cuts, this is an excellent idea of Dr. H. C. Duffy's, and I have long been wanting to know what could be done to avoid pain in these cases. It is often not easy, without seeing, to carry out these directions, unless they are very explicit. One would like to know what is the best anaesthetic for this purpose, and about how much should be used for a child and for an adult for a wound, say, requiring eight or ten sutures. It would be desirable to have anaesthetic that is not irritating. Another matter, equally important, is how to prevent dressings sticking to wounds of all kinds, especially burns and scalds. To remove these dressings causes intolerable pain—worse than suturing without an anaesthetic.

Treatment of Radium "Burn"

"INQUIRER," who asked for suggestions (*Journal*, April 20th, p. 861) for the treatment of a persistent erythematous condition of the skin following the application of superficial *x* rays, and, later, radium treatment, in a case where a radical operation had been performed for the removal of a carcinomatous breast, now writes: I am pleased to say that the patient is now free from this condition and in very good health, there being, so far, no signs of any recurrence of malignancy. The treatment employed was washing the part with a mild disinfectant lotion and applying fresh, cold cream from a farm twice daily. The itching was gradually allayed and the redness faded, but the affected area extended from the edge of a circular patch six inches in diameter to both sides of the chest and just round to the back. By constant application, however, this gradually faded away, and about three weeks ago had, with the exception of a few spots, almost disappeared. These have now gone, and the skin is free from this condition. The writer has previously noticed the efficacious effects of fresh, cold cream in the case of a man who had an erysipelatous-like reddening of the lower part of the left side of the nose, due to sun exposure. If the cream is applied when it is turning sour it only aggravates the redness—it must be fresh.

Humidity of Flats

"CIVIL ENGINEER" writes: With very dry ground after a long drought there would be perhaps no difference in humidity of air at ground levels and high levels as the air would just be as dry at ground level as at twenty feet up. But with ground soaking wet or with ground covered with snow a very great difference might be expected in the humidity of the air, the air at ground level being very humid and diminishing in humidity up to say fifteen or twenty feet. If the windows of a ground flat and an upper flat were left open, then there would drift in a greater dampness in the case of the ground floor than in the case of the upper flat. It perhaps is common knowledge that iron is more difficult to be kept from rust on a ground floor than on an upper floor. It is perhaps also common knowledge that the smell of damp air is more evident at ground floor windows than at upper windows. Perhaps some of your readers might be good enough to give their experience, especially in regard to health of one or other. The question arises as to the design of certain hospital buildings, and is not a merely academic question.

Income Tax

Expenses of Assistant

"R. L. S." inquires as to (1) travelling expenses for an interview for an assistantship, (2) loss on sale of car, and (3) living, etc., expenses while unemployed.

*** (1) Not allowable to an assistant as being anterior to the employment; (2) allowable only to the extent to which the loss is covered by the cost of replacing the car for professional use; and (3) no allowance is due.

Payments on Property in Scotland

"J. M." purchased a house in Scotland as from April 1st, 1934. At Whit-Sunday, 1934, he became liable for half a year's feu-duty and stipend (£8 15s. 7d.) and £9 5s. bond interest, and those payments were made under deduction of tax. The Scottish inspector claims that these payments must be regarded as deductions in arriving at his net total income for the year ending April 5th, 1934. "J. M." is adversely affected by that, owing to the restrictions of life assurance and earned income relief.

*** As regards the feu-duty and stipend payment we agree with the Scottish inspector. Rule 4 (1) of No. VIII, Schedule A, provides that where lands, tenements, etc., in Scotland are subject to the payment of annual sums tax shall, as regards periods ending on May 15th, be deducted at the rate in force at the commencement of such periods—that is, in the present case at the rate in force for 1933-4. Section 39 (2) of the Finance Act, 1927, lays down the rule that payments from which tax is deductible are to be deemed to be deductions from total income of the year by which the rate of tax is determinable "notwithstanding that the . . . sums . . . accrued . . . in whole or part before or after that year." The combined effect of these two provisions is to make the feu-duty and stipend payments due on May 15th, 1935, deductions in arriving at the net total income for the year to April 5th, 1935. We are of opinion, however, that the inspector's view can be challenged as regards the bond interest payment, because we regard Rule 4 of No. VIII, Schedule A, as applying to rents and payments in the nature of rents rather than to bond interest. But it must be admitted that the matter is open to doubt where the payment of the interest is secured on the property, as in this case. Our grounds for this view is that interest is dealt with in the general rules, and No. VIII, Schedule A, is clearly framed to deal with rents and similar payments issuing out of lands.

LETTERS, NOTES, ETC.

Destruction of the Cadaver with Sulphuric Acid

Interested in the case of Sarret, a French murderer convicted in 1933 of having done to death victims whom he had previously insured and of whose corpses he had disposed by dissolution in a bath of H_2SO_4, J. R. Obiglio and two others, writing in *Semana Médica* (January 31st, 1935), have experimented similarly on stillborn children and lower animals. They conclude that Sarret's crimes may be successfully reproduced at any moment; that complete destruction is secured only when the tissue is entirely submerged in acid; and that there is a distinct relationship between the age of the victim and the time taken by the acid to destroy all remains. After destruction it is possible to demonstrate the chemical qualities of foreign matter in the liquid, these varying according to the type of tissue destroyed. Crystals and drops of oil may be seen in the sediment. The authors add that it is perfectly easy to get rid of the used liquid by pouring it into a sewer or by burying it at any depth below 60 centimetres.

Pollution of the Thames

Mr. S. A. JEWERS (Town Clerk, Town Hall, Barking, Essex) writes: With reference to the many articles and communications which have recently appeared in your valuable *Journal*, without exception all of them are inaccurate in that they refer to the outfall at Barking, or at Barking Creek. In point of fact there is no outfall at Barking or at Barking Creek, and sewage does not enter the Thames at this point. The outfall of the London County Council works enters the Thames from the metropolitan borough of Woolwich, and for many years Barking has been known inaccurately as the home of London sewage, and I think it is about time that these statements should be contradicted.

First Aid Refused

"A MEMBER OF COUNCIL" writes: I happened to be on the spot when a woman was knocked down by a bus, near the top of Tottenham Court Road, and very naturally proffered assistance. This was refused by the police, although similar offers by other bystanders, who may or may not have been St. John Ambulance men, were accepted. I asked the sergeant why my offer was refused, and his reply, in effect, was, "How do I know you are a doctor? Anybody can call himself a doctor. Have you got your certificates with you?" His manner was insolent in the extreme, so I came away.

North Staffordshire Royal Infirmary, Stoke-on-Trent

Mr. W. STEVENSON (secretary and house governor) writes: Please permit me to point out that the above-named institution is proud of the fact that it has the right to call itself Royal, a right granted in person by His Majesty King George V in June, 1925. Your description of it in the *Journal* of August 31st (p. 406) as "The North Staffordshire Infirmary at Hartshill" hardly does it credit, and is not, I may add, a sufficient postal address.

Poster for Display in Swimming Baths

The Health and Cleanliness Council (5, Tavistock Square, London, W.C.1) has issued a new poster designed for use in swimming baths. Its object is to impress upon people using public and other swimming baths the necessity for scrupulous cleanliness of persons before entering the bath. The council will be pleased to supply copies of the poster; applications should be addressed to the secretary at the above address.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 44, 45, 46, 47, 48, 49, and 53 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *136*.